The measurement of occupational identity.

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The Measurement of Occupational Identity

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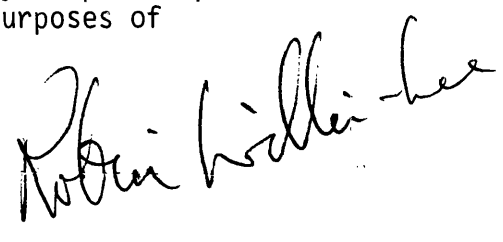

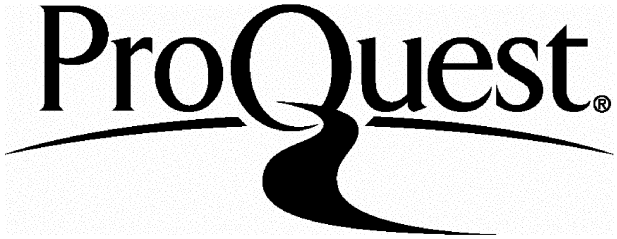

Summary

This study begins with general questions concerning the supply of appropriately qualified and motivated manpower to certain occupations and with related questions concerning occupational attitudes and choices of school leavers. Prevailing concepts and theories earlier advanced as explanations of the transition from school to work, the processes of matching people with jobs, and the operation of individual occupational attitudes and choices are then critically examined. Four categories of theories are identified and subjected to further close scrutiny and it is then argued that previous theoretical and methodological approaches fail to account adequately for the occupational choice behaviour of a single individual.

The remainder of the thesis is concerned with finding a new theoretical and methodological approach to occupational choice and with carrying out field trials using the new approach. Selected elements drawn from clinical psychology, occupational cognitive psychology, occupational cognitive sociology, mathematical psychology and repertory grid technique are brought together to form a new theoretical and methodological foundation for the present study.

Following a small pilot study field trials using the new approach were carried out with the help of teachers and final year pupils of two schools using two modified forms of the repertory grid. Data collected from 66 teachers and 357 boys and girls in their final year of compulsory schooling was analysed using the Grid Analysis Package developed by Dr. Patrick Slater. The instrument tested confirmed the occupational aspirations of between 67 and 83 per cent of school leavers and predicted

the occupational destinations of between 45 and 65 per cent. The instrument also revealed valuable information concerning the occupational psychology of individuals and groups as well as about individual and popular evaluations of specific jobs.

In conclusion it was felt that this study entailed, even with its limitations, important implications for some earlier explanations of occupational attitudes and choices, for personnel selection and recruitment procedures, for school/industry interface activities, for vocational guidance and counselling, and for future developments in the field of manpower planning.

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CONTENTS

CHAPTER ONE

INTRODUCTION: The Origins and Contexts of the present study

This study is concerned with manpower or human resources management, particularly with reference to young people who are reaching the end of compulsory schooling, their preparation for working life, their vocational choices and attitudes, and their transition from school to work. The study was prompted initially by questions raised in industry and commerce in a climate of mounting concern throughout the 1970s,especially questions concerning (a) the quality of educational output as manifest in new recruits to industry and commerce, (b) the attitude to work of new entrants to industry and commerce and, (c) questions concerning the share of educational talent entering industry and commerce from among those of school leaving age, and, related issues such as whether school teachers are too much oriented away from industry and commerce and have an undue influence over the attitudes of some school pupils.

Seldom can a study have taken place against a background of such intense interest and activity, local, regional, national, and international, in the research field. The reasons for the present high levels of interest are economic rather than academic although many of the factors are not new in themselves but are being felt more urgently and insistently than before. One of the most conspicuous outward manifestation of current economic problems is the unprecedentedly high level of youth unemployment in the United Kingdom and elsewhere. The social and economic consequences and implications of this are focussing attention on longer term issues of education and employment which have been at the centre of widespread debate not only in educational and employment circles but within and between governments and among whole populations. Periods of fuller employment have not demonstrated so acutely the serious problems and issues involved in the preparation of young people for working life nor the necessity and importance of understanding the process by which young people come to their decisions about occupations and occupational choices.

If the primary context of this study is the field of manpower management and the appropriate and efficient deployment of human resources, there are nevertheless a number of secondary contexts which are of considerable interest, relevance and importance. For example there is the matter of the relationship between national educational and vocational provision and national economic success. The lead of British industry and commerce in the early nineteenth century may have seemed so great that the education and training of the workforce appeared non problematic or non-urgent. However, after the great exhibition of 1851 it was acknowledged that other countries were fast catching up and the Paris Exhibition of 1867 confirmed the relative decline of British industry. The rapid progress of other countries began to be associated with superiority of design, more efficient use of manpower, and more extensive provision of secondary and further education. In the United Kingdom the separate establishment of the Science and Art and Education Departments seemed to underline a division bewteen science and education. The Newcastle, Clarendon, and Taunton Reports drew attention to the large numbers of children who were neither at school nor at work, to the poor literacy and numeracy standards of those that were at school, and noted with alarm the exclusion of science from the education of the higher classes and the fact that many parents favoured the teaching of practical skills to the exclusion of classical subjects. The Devonshire Report (1872-75) although concerned primarily with scientific and technical education in universities was alarmed by the Newcastle and Clarendon findings and the Samuelson Commission (1882) a decade later investigating links between national economic performance and the education system concluded that industry had failed to adapt itself to changing conditions was becoming less competetive, and that the neglect of education and training was an important factor. The Cross (1888) and Bryce Reports (1895) which led to the 1889 and 1902 Education Acts were both impressed by the quality of German education and industry and by their close co-ordination. By the end of the nineteenth century the following features

of the education employment relationship which were to exist for another century were already discernible:

1. The decline of British Industry in relation to competitors
2. Concern over educational standards
3. The institutionalised separation of general education from scientific education and vocational preparation
4. Statutory control over education but a laissez-faire policy towards industrial and commercial training
5. Concern over industry's effectiveness in producing necessary industrial skills.
6. The absence of manpower planning but tentative efforts at manpower planning.

This nineteenth century legacy emphasised some of the short comings of the education system and culminated in the Industrial Instruction Act (1889) and contributed to the subsequent growth of technical colleges and polytechnics in which public money was devoted increasingly to vocational education. The Fisher Act of 1918 abolished fees for elementary education, exemption from the leaving age of fourteen and determined that not less than fifty per cent of the cost of education was to be met from central funds. Since then the story has been one of ever increasing national resources devoted to education. The Hadow (1926) Spens (1938) and Norwood (1943) reports paved the way for the Butler Act in (1944) whose social and philosophical assumptions, namely that more and more people would want and should be given free the length and quality of education previously enjoyed only by an elite, established the conditions necessary for the stream of subsequent reports, Crowther (1960) Newsom (1963), Albermarle (1960), Robbins (1963), Plowden (1967), and James (1972), all of which were concerned with increasing educational provision and opportunity. However this Act rejected

multilaterial schools in favour of a tripartite system of grammar, modern, and technical schools. The school leaving age was raised to fifteen years in 1947 and to sixteen in 1975.

Defects inherent in an unco-ordinated voluntary training programme had similarly been diagnosed in a succession of nineteenth century reports but seem to have been overlooked. However, the two world wars not only required the co-ordinated mobilisation of the entire workforce of men and women, but also enabled the government to take statutory powers including direction of labour. The government also gained experience of vocational preparation by expanding the utilisation of government training centres and in 1944 a white paper appeared requiring proper instruction for all jobs at whatever level of skill and the offer of government grants to employers carrying out more advanced training. The Industrial Organisation Development Act of 1947 also referred to vocational training in its suggested functions for Development Councils for each industry and the Employment and Training Act of 1978 set out the principles of a new Youth Employment Service. This Act also empowered the minister to provide training courses for persons who were above the upper limit of compulsory schooling provided that certain financial limits were not exceeded. Although there were persistent doubts as to whether national training needs could be left to industry the Carr Report (1958) maintained the historical government/industry distribution of responsibilities for education (government) and training (industry). A report of the Central Advisory Council for Education, 'Technical Education in Wales' (1961) proposed a national craft apprenticeship scheme administered by the Ministry of Education in which courses were to be paid for by a levy on firms. The proposal to transfer responsibility for training to the education system was not approved but the idea of a grant/levy system found expression in the Industrial Training Act of 1964. This Act set up the Industrial Training Boards based on the existing structure of industry, and, a Central Training

Council to keep a watching brief through its committees. This Central Training Council was dissolved in 1973 in the new Employment and Training Act and what was to be a National Training Agency to replace the Central Training Council finally emerged in the form of the Manpower Services Commission which is now responsible to the Secretary of State for Employment through two main agencies the Training Services Agency (T.S.A.) and the Employment Service Agency (E.S.A.).

The historical development of national education and training systems in the United Kingdom thus implies that successive governments have conceived of meeting national manpower requirements in terms of more and more public investment in the education system which was, at least for a century or so been under statutory control. Training has on the other hand been subject increasingly to regulation, as opposed to control, with industry and commerce left largely responsible for industrial and commercial training substantially at their own expense. A centralised co-ordinated manpower policy of non-vocational education, vocational education, and training has not been attempted except perhaps in relation to the supply of teachers and doctors where in neither case has it been completely successful. This reluctance to plan centrally may be attributable to the need to tackle a number of short-term crises, the unavailability of adequate statistical information, the cost of obtaining certain kinds of information, changes in governments and policies making the long term view impossible, the unpredictability of scientific and technological advance and, finally, the unaccaptibility in a democracy of direction of labour except at a time of national emergency. The economic background over this period has however been deteriorating. The disturbing factors identified in the nineteenth century and mentioned earlier have neither gone away nor improved but rather have worsened and it is several of the questions raised in response to this steady and now precipitate economic decline that have prompted this study. Widespread criticisms of industry for

failing to deliver the goods has led industry itself to examine its own position and circumstances in an effort to arrest declining performance and a deteriorating image. Some of these questions have concerned the education system. In particular, industry has had little say in the allocation of ever increasing public resources within the education system and have become less and less satisfied with its own role as a consumer of educational output on a take it or leave it basis. Industry has recently put considerable effort and resources into developing a new relationship with educational institutions more as a partner than as a consumer and this new relationship has been endorsed and encouraged by government:-

> "Companies themselves could achieve much if each were to take under its wing at least one school and make a determined effort to ensure a better understanding of manufacturing industry, its importance to the wealth of the country, and its career opportunities"
>
> (Dept. of Industry, 1977)

What has come to be regarded as the interface between school and work has now become the focus of an unprecedented proliferation of organisations and activities in the school to work field so much so that one reputable commentator has described the scene as chaotic (Jackson, 1977). Although these interface activities appeared to be geared towards improvements in mutual understanding on the part of those working in industry, commerce, and education, the employers' worry that those in education are almost oblivious of the needs of the wealth producing function of society is often only thinly disguised:-

> "Teachers attitudes and knowledge may influence pupils too. It therefore seems important that teachers should be helped to develop an understanding of national economic needs, the role of manufacturing industry and its dependence on the education

services for people of high ability .... There are some indeed who specifically advocate a bridge year in industry for all prospective teachers"

(Dept. of Industry, 1977)

The last quotation refers to teachers' and pupils' attitudes and these have been one of the main targets of the new school/work interface organisations and activities.

Conferences, symposia, and seminars have been organised including a particularly successful series of regional conferences organised by the Department of Industry which has taken a leading role in promoting such activities. Its publication 'Schools/Industry Collaboration' (1978) lists literally scores of organisations and activities in the school to work field supported, financed, or organised by the Department directly. Non government bodies such as the Industrial Society have run school conferences on industry since the 1960's, the British Institute of Management at its annual conference in 1978 called for a three year action programme to co-ordinate management and educational institutions and to achieve effective dialogue at all levels. Local Employers Federations and Chambers of Commerce have transformed the school to work scene in some areas through joint activities organised by their education and training committees. Companies have taken initiatives such as the Oxford Symposium of 1967 supported by the British Steel Corporation and some Local Education Authorities have set up joint industry/education working parties. Schools/Industry link and placement schemes/organised/visits, fellowships, and placements to give teachers first hand experience of industry aimed at widening knowledge of how industry and commerce function and demonstrating opportunities and challenges in industrial and commercial organisations. These schemes also provide experience from which teachers can draw in their teaching and gives teachers first hand knowledge of young peoples' first experiences and contacts with

work on leaving school - At least one case study of school/industry co-operation and collaboration has been published including some positive evaluation (Dowdeswell, 1979). Another approach has been the use of special projects and simulations of which perhaps the best known is Young Enterprise in which pupils establish their own company including selling shares, producing and marketing a product. The scheme is backed by industry with finance, staff, and expertise the aim being for pupils to acquire broad experience of industrial practice.

Another principal target of school/work interface organisations and activities has been the day to day living experience of pupils and teachers especially in the school curriculum. The appropriateness of this curriculum has been challenged as bearing little relationship to vocational needs. Curriculum change had occurred as a result of a more generally accepted need for school learning to be relevant in terms of children's own needs the-so-called child-centred curriculum. But this concern that school cirricula should be responsive to the needs of individuals and relevant to children's experiences of everyday life was matched throughout the 1970s by a growing concern for the needs of society and society's institutions.

> "The criticism of the educational system for being too academic mounted rapidly during the mid 1970s and was accompanied by concern over an increasing lack of basic literacy, numeracy, and communication skills in countries such as Belgium, Canada, France, The Federal Republic, the United Kingdom, and the U.S.A. ..."
>
> (Melvyn, 1977)

The unusually high visibility of educational output at school leaver level owing to the high proportion of young unemployed and the difficult economic conditions and the past performance of industry served to attract more and

more attention to the relevance of school curricula, to employment, the standards of basic skills among school leavers, and the attitudes of young recruits at work. Responses to these concerns may be detected at all levels. The Council of the European Communities passed a resolution (13.12.76) calling for the development of curricula and teaching methods providing appropriate preparation for working life, better vocational guidance, compensatory strategies, improved training of teachers, improved co-ordination between educational guidance, placement and training services. Pilot projects at community level to assist in the development of national policies directed towards these themes have been initiated and many of those underway in the United Kingdom directly concern the c rriculum of schools and in further education. Nationally the British Government initiated a public debate involving all the interested parties culminating in the consultation document 'Education in Schools' (Cmnd. 6869, 1977) which found that:-

> "The curriculum of schools must reflect the needs of this new Britain ..... On the other hand only a minority of schools convey adequately to their pupils that ours is an industrial society ....."
>
> (Cmnd. 6869, 1977)

A parliamentary select committee, the Department of Education and Science, the Department of Industry, the Standing Conference on Schools Sciences and Technology, the Schools Council, the Confederation of British Industry, the British Institute of Management, trades unions and industrial training boards have all been active in schools/industry liaison at national level. Industry has taken the view that because individual schools enjoy so much freedom and autonomy it is at the level of the schools that the greatest effort should be made andin some areas firms and schools have been twinned sometimes with remarkable results.

One of the by-products of all this interest and activity in the transition from school to work has been an often renewed call for more

generous and effective provision of Guidance and Counselling. The problem is well summarised in Schools Council Working Paper entitled 'Raising The School Leaving Age' (1965).

> "And they (pupils) need a microscope, with which to gain insights into their own experience and into the choices which they themselves and their contemporaries face in the here and now. Mature judgement arises when both telescope and microscope are used to the full, when what is seen is compared, ordered and discussed with others by use of reason, skill, knowledge, imagination, and sensitivity of feeling and when it is realised that the resulting judgements are a matter of personal responsibility, frequently involving commitment in the face of uncertainty."

By the later 1970s guidances and youth employment services had been criticised in a number of reports and documents and were thought to be under serious strain (OECD 1977).

> "Guidance services, to be effective, have to be continuous and comprehensive, and specially trained staff to operate them must be available in sufficient numbers. At every stage when educational and occupational choices have to be made, and particularly from the age of 13 onwards, young people and their parents need guidance which takes account of personality, potential, and special circumstances as well as of the young peoples' educational characteristics and of the implications of the choices before them"
>
> (Bulletin of the European Communities Supplement 12/76, 1976)

Although the need for the type of services described above was felt more strongly than ever some of the criticisms of present guidance and employment services were serious.

"We feel it necessary to condemn the perfunctory methods which are sometimes used. It cannot be regarded as reasonable or economical after a child has been educated in school ..... at considerable public expense for 9 or 10 years to devote only a few minutes to an interview which may determine the child's whole life"

(Albermarle Report, 1965)

Criticism of perfunctory interviews and approaches were matched elsewhere by criticisms of the techniques used in careers interviews, in particular criticism of their unscientific basis, the failure to use properly constructed tests, a lack of follow up of and feedback from those in employment, their perpetuating a vicious circle in which jobs fail to satisfy and abilities fail to develop.

In the schools a vocational curriculum has been developing which may now include more provision for self-awareness as well as for opportunity awareness, career choice and decision making, and preparation for the transition from school to work. There have also been attempts to move away from the square pegs square holes kind of crude matching operation towards the idea of equpping young people with longer term resources for life planning and career development. Even so some have still found the service unequal to the requirements of the situation and some of the objectives themselves misconceived.

"Vocational embellishments in the school curriculum are not intrinsically undesirable but a greater need for the majority of people who leave school at the earliest opportunity is to be offered an employment service that treats their employment problems seriously. As a result of being involved for over a decade in studying the vocational problems of young workers, I have become conscious of the lack of support available to them at

> the end of their school life and when they later seek to change their jobs - especially during periods of unemployment. Casualties of these crises are still often left unattended on the fringes of the labour market and in danger of growing adrift of other social institutions. Such problems are growing rather than diminishing .... The work of the careers service in this area has made little progress and has probably deteriorated over the last 20 years. Yet it is here that services are most needed and most likely to be effective"
>
> (Roberts, 1977)

The final context to which the research described here is relevant and to which reference should be made in this broad introduction to the thesis concerns the gradual evolution of more active manpower policies in the United Kingdom. The formation of the Manpower Services Commission in 1973 has already been mentioned and in 1976 the MSC published a document with the title "Towards a Comprehensive Manpower Policy" which states

> "A comprehensive manpower policy should have a dual function: to enable the country's manpower resources to be developed and contribute fully to economic well being; and to ensure that there is available to each worker the opportunities and services he or she needs in order to lead a satisfying working life".

This document makes it clear that the MSC is not merely concerned with manpower measures having a social purpose in alleviating the hardships of unemployment but with both the economic and social benefits to be derived from the more effective working of the labour market although within this context young people have been singled out for special consideration. The 1975 Training Services Agency document 'Vocational Preparation for Young People' identified ignorance of the world of work and concern about the current aims and role of careers teaching and the

careers service as two of the main problems needing attention. A later T.S.A. document 'Training for Skill' presented to the MSC by the Vital Tasks Group found that:-

> "there was a widespread consensus that training and the Further Education System should aim to provide a more systematic way of achieving an adequate year by year flow of young people into training in skills requiring lengthy training in order to eliminate violent fluctuations, particularly at a time of economic downturn, which are due to planning on too short a time scale."

The government's special measures introduced as part of its counter recession policy have steadily increased in size and scope owing to the severity of the recession and were designed to meet three main objectives:

(i) To safeguard long term economic interests by making good any shortfall in the level of entry to long term training occupations

(ii) To help ensure that there is an adequate trained labour force ready for economic recovery

(iii) To help preserve training facilities that will be needed again in the future.

Apart from these incentive training special measures other forms of government sponsored training for young people have also expanded the two major schemes being the Occupational Selection Courses and Short Industrial Courses. These have been run in Skill Centres, Colleges of Further Education and in employers establishments. Occupational selection courses begin with a period of assessment during which trainees try out a variety of different tasks and are given instruction in life skills. After assessment, trainees may find employment or move into further training in the occupational area indicated by the assessment. The Short Industrial Courses last about 12 weeks and are designed to introduce young people to a specific occupational area and to prepare them for specific tasks. The courses are designed to

meet local labour market conditions. Other courses include preparatory courses which offer training in literacy, numeracy and wider opportunities courses which provide an in-depth assessment of attitudes and potential in a variety of occupations. Trainees are equipped with job-search and other job-getting skills and are given experiences and activities aimed at increasing motivation.

The various training interventions outlined above are essentially economic rather than social measures although other interventions have been undertaken with more of a social purpose, for example by encouraging employers to provide opportunities for youngsters who might not normally be recruited owing perhaps to a lack of formal qualifications. Many young people have been caught in a vicious circle in which they cannot obtain employment because they have no useful employment experience. The Work Experience Programme was set up to give as many young people as possible real work experience that would stand them in good stead in the search for more permanent employment. A Recruitment Subsidy for school leavers was introduced in 1975 payable to employers who engaged eligible young workers up to a maximum of 26 weeks and this was followed a year later by a Youth Employment Subsidy targeted at young people unemployed for 6 months or more. The latter is designed to assist the longer term unemployed young people into regular employment. In May 1977 the MSC published 'Young People and Work'. A report on the feasability of a new programme of opportunities for unemployed young people, and a discussion document 'The New Special Programme for Unemployed People ... The Next Steps ....' suggesting how a new programme might be implemented and calling for comments. 'Young People and Work' paid tribute to earlier schemes:-

> "There can be little doubt that the schemes mounted so far have added significantly to the general stock of skills in this country"

The report however goes on to criticise the existing provision for

several reasons including a) that opportunities had been introduced piecemeal and were not always related to the specific needs of localities and b) that the opportunities were often confusing to young people who tended to take whatever opportunities were available. A new 800 million pound co-ordinated Youth Opportunities Programme was implemented in September 1978.

> "What therefore is needed is a variety of opportunities and experiences from which the individual may benefit according to circumstances, abilities, and interests .... Each opportunity should relate to the realities of the world beyond full-time education".
>
> (Manpower Service, Commission, 1977)

The Youth Opportunities programme has endeavoured to turn what was potentially a huge problem and loss into a worthwhile structure of opportunities and benefits through which young people may be helped to make the transition from school to work. The impact on the school/work interface and on the lines of large numbers of school leavers is self-evident although the extent to which schools and other educational institutions have understood the changes that have taken and are taking place is more open to question.

The issues raised above form both the background and the point of departure of the present study. To summarise, in the old medieval guild system for example, it makes little sense to attempt to distinguish between education and work since both were so closely bound together in the apprentice role and in the apprentice/journeyman relationship.

> "In theory apprenticeship provided more than merely vocational training because the apprentice lived with the master who was responsible for his moral development as well as for his technical competence".
>
> (Wardle, 1976)

Then succeeding centuries witnessed a clear separation of educational and

vocational systems which developed more or less independently until quite recently when the two have come together in a new reintegration of educational and vocational interests and activities. The circumstances giving rise to this reintegration have been largely economic but also social, economic in so far as they relate to the paramount need for an adequate supply of appropriately qualified manpower to do the nations work, social because of the recent mismatch between educational output and labour market uptake of both qualified and unqualified educational output and the problems and consequences of large scale social and economic redundancy among the young. Within this framework attitudes have been seen as of determining importance both in relation to different occupations and to work itself. Attitudes to different occupations may influence or even determine important job choices and decisions, affect the demand for opportunities in various occupations and hence the supply of recruits to particular skills, trades, and industries. Shortfalls in the supply of recruits to some industries have from time to time caused great anxiety. Attitudes to work itself are also important both in terms of the quality of working life and level of satisfaction for the individual worker and for the design of work tasks and environments.

> "It is easy to suppose that work which conveys chiefly feelings of deprivation can lead to attitudes of apathy or aggression and a will to extract the maximum extrinsic compensation"
>
> (Dept. of Employment, 1975)

The very substantial resources directed towards the schools/industry interface and the large number of organisations and activities involved are often concerned directly with the attitudes held by young people, with attempts to encourage more informed and favourable attitudes towards certain kinds of occupations, and to balance or even to counteract unfavourable influences on young people's perceptions of industrial and commercial careers.

Substantial resources have also been directed towards the school curriculum which has come to include an ever widening spectrum of issues and through which young people are exposed to a variety of influences and pressures never before experienced so directly by a generation about to begin the transition from school to working life. The call for more and better guidance and counselling implies a need for these influences and pressures to be counter-balanced by greater and more skilled attention to young people themselves, their personal and vocational development, and the ways in which they come to important vocational decisions. Here again attitudes intervene crucially between perception and decision for action.

The move to a more manpower planned society carries with it a responsibility to have due regard for individual attitudes because as the Manpower Services Commission has itself stated:

> "Since the Manpower system is composed of a multitude of individual and corporate decisions about work there is nothing mechanical about it ....."

To the extent that in a free society direction of labour is unacceptable and the manpower system is the result of a multitude of individual decisions about work, attitudes again assume considerable economic importance.

This study originated initially from the idea that a need for an extended and improved understanding of young peoples' occupational attitudes is clearly implied in all the areas discussed above. An attitude is supposed to be a psychological entity that intervenes and operates between perception of and decisions and actions about the world of work and to the extent that attitudes influence the ways in which individuals move towards or avoid particular occupations such attitudes would be important to any explanation of occupational identity and choice. This study is concerned with the exploration identification, and measurement of occupational identity and is intended to go some way towards answering some of the practical questions

that have arisen in industry, education, vocational guidance and counselling and elsewhere such as those with which this introduction began.

Before embarking on the empirical work of this study an extensive literature search was carried out in the area of the transition from school to work. This search is reviewed in Chapter Two and revealed one or two voids which allowed the present study to go forward. In particular this search did not reveal a theoretical and methodological approach to the process of occupational choice that adequately explained occupational choice behaviour in the individual case. Neither did this search reveal the existence of any studies that had established a theoretical or methodological position that lent itself easily to pursuing answers to the questions with which the present study was concerned. It became clear that this study would have to be concerned in the first instance with the location or development of a new theory and methodology appropriate to the subject of enquiry that would provide a necessary structure for and guide the proposed investigation. The location and development of such a theory and methodology is described in Chapters Three and Four. Chapter Five is concerned with a brief description of the empirical work, methods of data processing and analysis, and the results of the investigation are set out in Chapter Six. The thesis concludes with a brief summary and discussion of the main points of interest or possible future significance.

Chapter Summary

Chapter One explain s how the present study has its origins in broad questions raised in industry and commerce concerning educational output at the end of the period of compulsory schooling. The primary context of the study, appropriate and effective human resource management, is established together with a number of subsidiary contexts within which the study would similarly be relevant - for example, the relationship between education, training, and national economic success, educational preparation for work, schools/industry liaison, attitudes to occupations and to working life, school vocational curricula vocational guidance and counselling, and manpower planning.

Thus the study may be located within the field of transition from school to work studies although, potentially, it has a wider range of implications. Among many complex issues and sub issues within the transition between school and work three implicit unifying themes are of particular importance both in themselves and in so far as they contribute direction and purpose to the research reported in this thesis. The themes are a) the supply of appropriately qualified and motivated new recruits to specific occupations, b) the processes involved in successfully matching people with jobs, and c) the occupational attitudes and choices of school leavers.

Finally Chapter One concludes by explaining how it was found at an early stage in the research process that the present study would need to be concerned very substantially with theoretical and methodological issues there being apparently no established 'off the peg' theoretical and methodological position 'tailored' to the particular needs of the present research nor that would meet all the criteria derived from the research objectives.

CHAPTER TWO

The Transition from School to Work: Perspectives in Research

2. INTRODUCTION

The area of activity and research interest known as the transition from school to work stands at the intersection of several distinct but overlapping social sciences including political science, economics, biology, sociology, and psychology. The number of different disciplines involved and the variety of approaches within disciplines makes it extremely difficult for a review of this literature to be carried out within a logical framework. The effort needs to be made however. It is unfortunately, commonplace to find attempts at reviewing the school to work literature in which the selection of material is apparently justified by the degree to which it conforms to a research perspective adopted later in an article or research report. Inevitably such an approach fails to do justice to the richness and diversity of the school to work literary scene and whilst the following literature review cannot claim and does not attempt to be encyclopaedic, it aims to be selective in a way that is representative and free from bias towards a particular disciplinary or theoretical framework. The review falls into three sections. The first deals with the literature pertaining to relevant political economic, occupational, educational and vocational structures together with the large manpower flows from one structure to another. The second deals with young workers in transition including their attributes, aspirations, attitudes, and interests. The third section examines the major contributions to theories of occupational choice.

These sections are somewhat arbitrary, in that occurence of a particular item under review in a particular section, which it exemplifies, does not mean that the same item could not be found a place in another section, depending on the breadth and scope of the item in question.

2.1 Section one further subdivides into Economic and Political Systems, The Social Psychology of Work and Work Organisations, The Study of Youth, Studies of the Transition between School and Work, The Entry of Young People into the Labour market, The Effectiveness of the Youth Employment Services, and Industrially Sponsored Research into the Recruitment of Young People into Particular Industries.

2.1.1 Economic and Political Systems

These systems constrain individuals by placing limits on their psychosocial processes and even,on occasion, by modifying them. Political processes and controls affect employment and trade activity and encourage or discourage the growth and development of industries and of industrial areas. Individual identification with particular political ideologies may affect entry to certain occupations. The widening of the school curriculum, the 'hidden curriculum', educational selection processes and the exercise of authority in schools all suggest both direct and indirect contributions from schooling to political socialisation. Despite its obvious importance, little is known about how political processes shape education systems and there is a dearth of research and literature on this subject, with the notable exception of the work of Professor Maurice Kogan (Kogan, 1975).

"of the major social science disciplines
perhaps none has devoted less of its resources to
the study of education than political science .....
Political scientists have failed to produce a serious body
of research in the politics of education"

(Karabel & Halsey, 1977).

Economists, on the other hand have enquired into schooling and the workings of labour markets and have done much to illuminate the relationship between the educational system and the economy

"....It seems, therefore that the economic system, and particularly the structure of local labour markets may help to channel the flow of the labour force into different occupations, and may partially determine the kind of economic socialisation children experience".

(Butler, 1968).

However, the study of labour economics has not so far taken special account of any special characteristics of juvenile labour and classical theory of the operation of the labour market has itself been the subject of unresolved debate (Robinson, 1970). The issue is complicated further by the suggestion that there may be two labour markets in operation, adult and juvenile (Bosanquet and Doeringer, 1973), and by the proliferation of organisations and institutions that bring employers and workers in relationship to each other (see Chapter I).

A brief but helpful discussion of these and related issues is

given by Cyril S. Smith (Smith, 1975) in 'The Entry Location and Commitment of Young Workers in the Labour Force: a Review of Sociological Thinking'.

The rapid rate of growth of educational systems since the second world war raised questions of efficiency and value, and, of the contribution of education to economic growth. Education has been seen as a personal investment, as a social investment, and as consumption, applications of economic techniques such as cost-benefit analysis and rate of return analysis have been employed to test these theores which have important consequences for educational demand. Another important framework that helps in understanding the relationship between education and the economy is human capital theory (Schultz, 1961) which asserts that education is to be viewed as a form of productive investment which enhances human abilities, welfare, and potential, so that individuals become more productive and lay the foundations of a labour force poised for economic growth. Karabel and Halsey describe why human capital theory was popular.

> "For the business man there was the attractive appeal of education as investment. For university teachers and researchers there was an apparent scientific justification for the expansion of their ability. For some politicians, at least, there was support for democratisation of access to education, and for the 'consumers' of education there was the prospect of widening opportunities for well paid jobs".
>
> (Karabel & Halsey, 1977)

Efforts at testing human capital theory by correlating education and earnings have been criticised for not taking into account the complex factors intervening in the determination of wages, doubts as to whether higher earnings reflect greater productivity, and more general doubts concerning the ability of labour markets to match labour demand with labour supply. The problems of matching labour demand and labour supply are related to the quality of educational output, to problems in preparing estimates of future manpower requirements in a form that lends itself to shaping educational policies, and to the rate at which industry, commerce, and service organisations can absorb educated manpower. The trend through gradually more positive manpower policies towards a comprehensive manpower policy described in the first chapter creates a demand for a level of competence and reliability in manpower forecasting that so far has not been achieved.

> "The brief description of the various manpower projections which have been attempted to date is sufficient to show that such forecasting is still in its infancy, and that no country has yet developed its methods to what could be considered a satisfactory level..... The earlier discussion yielded rather pessimistic conclusions on the possibilities of accurately relating educational, occupational and output levels to each other".
>
> (O'Donoghue 1971).

Now that large numbers of young people are out of work and the gap

between the unemployment rates of adult and young workers is widening there is a greater than ever need for effective long term as well as short term planning (Melvyn, 1977) but, at the same time, it is doubtful whether existing manpower forecasting and planning techniques are equal to the task.

> "The fact is that our ignorance of the distant future introduces an element of uncertainty into educational planning that no juggling with vectors and matrices can ever dispel..... There is a theory of some sort. It is just that it is far fetched. If educational planning is ever to grow up and to become integrated with economic planning, it must repudiate this modern form of Crystal-ball gazing".
>
> (Blaug, 1972).

2.1.2 The Social Psychology of Work and Work Organisations

The literature falling under this general heading is primarily concerned with whether and how man can be successfully adapted to the conditions of work and at what cost. To attempt a thorough review of this literature would be itself a major bibliographic work and so what follows is inevitably a selection of items of special interest in the context of the present study.

The main intellectual traditionsin the study of work are reviewed by Dubin (Dubin, 1977) and one of these has been the concern of sociologists with the way in which life chances are determined in the

market place and the extent to which the processes explain social structure in general. Work is not only of personal significance but extends into the social and political consequences of work and work deprivation (Esland, 1975). Another tradition has been concerned with the socialisation of individuals into their working environments (Etzioni, 1969) and yet another with the processes of occupational choice, adjustment and careers (Crites, 1976). Major contributions to the above and other intellectual traditions in the study of work originate in American texts and the more general issues discussed are usually applicable to the situation in the United Kingdom. Other key British texts in the area are 'A Sociology of Work in Industry' (Fox, 1971), 'Work and Well-Being' (Warr and Wall, 1975) and 'The Social Psychology of Work' (Argyle, 1972), which deal with the key issues from a sociological, psychological, and social-psychological perspective respectively.

Of special relevance to the present study are the theories and research into work socialisation. Brim (Brim, 1966) defined socialisation as

> "The manner in which an individual learns the behaviour appropriate to his position in a group".

Brim sees work socialisation as part of a life-long process in which the expectations of others change from time to time and reward or punish individuals for correct or incorrect responses. Brim identifies three things that an individual must possess before he is able to perform satisfactorily in a new role. He must know what is expected of him,

he must be able to comply with the normative expectations of others, and he must be willing to adopt and practice the required behaviours.

Central to this view of the socialisation process is the notion of self-other relationships. Goffman (1959) argues that if an individual fails to gain confirmation of himself in social settings he tries out other 'selves' until confirmation is provided. This behaviour is determined by a configuration of sub-cultural values surrounding a specific role in a particular setting. An alternative view is provided by 'expectancy-theory' (Vroom, 1964; Porter and Lawler, 1968) in which an individual performs a role to the extent that he believes himself capable of performing the role and to the extent that he perceives the role performance as leading to beneficial outcomes. Schein's conception is one of individuals having constructed a set of social selves integrated around a core concept of self and that change and reintegration of the social selves allow individuals to assume certain roles without the central core self undergoing much change. (Schein 1968). Caplow envisages the socialisation process from an organisation perspective where the organisation first selects appropriate motivated manpower and then gives individuals new involvements and new accomplishments through which new values and new self-images emerge (Caplow, 1964). Becker (1964) adopts an even more structuralist position in which individuals are pressured into desired behaviours by contrived situations leading to desired behaviours and by subsequently linking rewards to the continued performance of these behaviours. For the individual continued participation and role performances become associated with pay-offs that were external to the decision to participate in the first instance.

There are a number of obvious shortcomings to all these theories which stress that the structured arrangements in which the socialisation process takes place determine the outcomes. Firstly, turning oneself into the kind of person others wish us to become presupposes levels of knowledge, ability, skill, and motivation which are not adequately accounted for by the theories described. Secondly these theories presuppose a consensus about the desirable outcomes of the socialisation process, which has been assumed and not demonstrated, and that the outcomes will be reasonably uniform, which hardly takes account of individual differences and differential responses. Thirdly no explanation is offered as to how I - Me, They - Me, psychosocial processes operate yet they are assumed to reside within individuals. These and other concerns are explored more fully later in a subsequent chapter.

Closely connected with the concept of socialisation is the concept of 'anticipatory socialisation', the preparation that takes place prior to entry to organisations among peers, families, and schools. Anticipatory socialisation is said to include the adoption of broad principles of working life and specific behaviours linked to specific occupations.

> "For the individual who adopts the values of a group to which he aspires but does not belong, the orientation may serve the twin functions of aiding his rise into that group and of easing his adjustment after he has become part of it".
>
> (Merton, 1957).

Closely connected with the twin concepts of socialisation and anticipatory socialisation is occupational selection and choice theories about which are explored and discussed in detail in Section 3.3.

2.1.3 The Study of Youth

In one of the outstanding texts on youth Musgrove asserts

> "The adolescent as a distinct species is the creation of modern social attitudes and institutions. A creature neither child nor adult, he is a comparatively recent socio-psychological invention, scarcely two centuries old. Distinctive social institutions have been fashioned to accomodate him; psychologically he has been made more or less to fit them, moulded by rewards and penalties".
>
> (Musgrove, 1964).

Musgrove's studies of youth are an important component in a series of youth studies which have been taking place for a considerable time and up to the present. The subject has attracted some of the finest English writers including Shakespeare and Dickens and, more recently, Salinger and Sillitoe e.g. Romeo and Juliet, Oliver Twist, David Copperfield, Catcher in the Rye, Saturday Night and Sunday Morning, The Loneliness of the Long Distance Runner. To these fictional literary portraits of youth may be added biographical accounts of childhood and adolescence (Russell, 1967/68) which together add up to a valuable fund of insights into the problems and processes of growing up. Insights of this kind have become

part of the necessary professional equipment of certain groups including doctors, teachers, youth workers, and youth employment specialists, not to mention parents, and these and other groups concerned with young people have generated a substantial body of literature reflecting a variety of aspects of the growing up process according to their own particular needs and interests. It is now a truism to state that the social and economic status of young people has been changing more and more rapidly and it is to be expected that such studies as are available reflect the dominant issues of the moment. Thus the report 'Disinherited Youth' (Carnegie U.K. Trust, 1943) was strongly influenced by the unemployment of the 1930's and examined unemployed young people between 18 and 20 years of age in Glasgow, Liverpool, and South Wales. This report draws attention to the relationship between the present predicament of the sample and the social and economic conditions of their upbringing as well as the relationship between unemployment whilst young and later unemployment. The findings of this report prompted another enquiry 'The Young Wage Earner' (Ferguson and Cunnison, 1951) which studied 1300 Glasgow Boys from 1947 to 1950 recording their district environment, home, family, physical, scholastic, and personal characteristics at the time of leaving school. Whilst the study did not attempt to determine precisely the strength of various influences on the boys' careers, relationships between environment, personality, and performance were brought out. Again this study emphasised the strong influence of home socio-economic standards and pointed out that physical robustness had a strong bearing on later success and that living in tenements, slums, and overcrowded homes gave 1 boy in 5 a poor physique (Ferguson and Cunnison, 1956). The Population Investigation Committee began a longitudinal study in 1945. Every mother who had a child in the

first week of March 1946 was interviewed. A sample of 5,362 boys and girls scattered all over the country was interviewed over a period of years by doctors and nurses, health visitors, survey members, teachers, and Heads. Valuable documentation was built up concerning first, ante natal and maternity services and, second, child health. The third follow up study examined the sample in primary education (Douglas, 1964) and the fourth in secondary education. The latter was concerned with two main areas of interest, the educational process and, parents and their children. The investigation covered ability, attainment, school leaving, G.C.E. results, selective schools, independent schools, secondary modern and comprehensive schools, as well as regional differences in opportunity. Parent characteristics were examined together with childrens' aspirations, interests, attitudes to work, emotional adjustment, school progress, delinquency, family size and achievement, birth order, adolescence, right and left handedness, short sight, absence from school, and illness. Among the many findings this report stresses that the social class differences in educational opportunity detected in the primary school persists throughout secondary education and extended over the whole ability range.

> "Early leaving and low job aspirations make it probable that as many as 5 per cent of the next generation of manual workers will be recruited from pupils who, in other circumstances, might have qualified for administrative or professional occupations".
>
> (Douglas, 1968).

By the mid 1960's concern over poor physical development and inequalities of educational and economic opportunity became overshadowed by more immediately pressing concerns.

> "The youth question - and whether there is a youth question - has dominated much discussion about society in the past year or two. Juvenile delinquency, juvenile sexual behaviour, juvenile ethics, juvenile culture, juvenile spending, the gulf between the generations - these are the themes that have recurred over and over again in writing, broadcasting and private conversations".
>
> (Raison, 1966).

Although Musgrove had carried out an investigation into inter-generational attitudes in 1962 (Musgrove, 1963) and had found that....

> "Young adults showed themselves better disposed towards adults than adults towards them".

and

> "What emerged with the greatest clarity was the rejection of the young by adults".
>
> (Musgrove, 1964)

the common perception appeared to be that it was the young who were rejecting adult values in their appearance, in their culture, and in their

lives. The literature of the period reflects the new concerns, delinquency (Downes, 1966) sexual behaviour (Schofield, 1965), ethics (Eppel and Eppel, 1962), culture (Fletcher, 1964), and combinations of behaviour, attitudes, beliefs, hopes and influences (Brennan, 1967 ; Erikson, 1967). The National Association of Youth Clubs set up an imaginative study in which three young social workers were sent to different towns with concealed identities to work with and to gain the acceptance of 'unattached' teenagers and, at the same time, to collect data on their problems, attitudes, and needs (Morse, 1965). Some writers examined theories of adolescence, focussed on the impact of change upon youth, compared the situation in the United Kingdom with that of other countries, and attempted to analyse in detail the different kinds of adult adolescent group relationships to which the young are exposed. (Milson, 1972). By the second half of the 1960's some aspects of the youth problem, such as mods and rockers seaside violence,were receding into the background and attention returned to improving educational facilities and opportunities for the young through the raising of the school leaving age and circular 10/65. Then after a brief lull came Home Office figures of drug abuse, the Hippie Movement, the sit-ins at the London School of Economics (1967), student militancy, the storming of the American Embassy (1968) and the occupation of 144 Picadilly (1970) on which edifice was inscribed....

"we are the writing on your wall".

As a direct response to the background sketched above and under the influence of the literature reviewed earlier in this section a Young Adult

Resource Project was begun based initially on youth club work and encompassing fourteen working groups of young people and adults in six schools, two further education establishments, three employment groups, a probation group and a child care group. The object of the exercise was for young people to meet adults and explore young peoples attitudes and responses to authority and to accepting responsibility for their own actions. The project has been written up by the consultant concerned (Bazalgette 1971) and includes valuable information on the behaviour of the young, of the adults, and of visitors to the group sessions. The report illuminates the predicament of the young adult and points to a number of questionable assumptions underlying the planning of work which separates the young from adults. The report highlights issues in the transition to adulthood and recommends a review of resources and structures and change. A more recent study examining relationships in adolescence employs samples of 100 boys and 100 girls at age 11, 13, 15, and 17 years in a cross-sectional design using two projective tests, a sentence completion exercise and a modified form of the Thematic Apperception Test. The study of 800 boys and girls examines solitude, self images, heterosexual relationships, parental relationships, and small and large group relationships. The findings are later linked together in a 'focal model of adolescent development' (Coleman , 1974). The study is preceded by a useful review of the theoretical background concerning adolescence.

There can be little doubt that the available literature on adolescence, young people's habits, relationships, general attitudes, and relationships between the young and adults, sheds valuable light on the

complex processes in the transition from school to work. However, this literature is already large and is still growing and the prospect of organising it into a coherent framework is, at the present time, unrealistic. The transition from school to work is contemporaneous with and a part of the greater transition from adolescence to adulthood but without the existence of such a framework the possibility of integrating hitherto diverse bodies of theory and empirical findings seems remote.

2.1.4 Studies of the Transition from School to Work

The following passage is quoted from Kitchin (Kitchin, 1944) by Keil et. al. in their influential paper 'Youth and Work: Problems and Perspectives (Keil et al. 1966).

> "The effect in discouragement, disillusionment and disappointment on the morale and on the health of young people on the threshold of adult life is one of the gravest menaces of the times, and a contributory cause to permanent and intermittent unemployment, and to juvenile dilinquency.

This passage is a paraphrase of the Report of the Departmental Committee of the Board of Education 'Juvenile Education in relation to Employment after the War'. The date of the report was 1916.

It is clear that the transition from school to work has been

as problematic for some considerable time. Kitchen explains why the proposals of the committee referred to above for compulsory 1 day per week continuation schools and better vocational education facilities to ease the transition came to nothing and in fact have still not resulted in much even after the proposals were reiterated in the 1944 Education Act and in the Crowther Report. As has been indicated in the previous section, young people are obliged to cope with their entry into occupations at the very time when they are already undergoing emotional upheavals linked with rapid biological development, changes in expectations, striving for independence, and testing the tensile strength of their relationships with adults. The young person may know little about the job at which he is aiming and has little or no practical experience of doing it. The sometimes frequent experience of rejection may be an aid to self-knowledge but are rarely pleasant. Historically, a variety of intervening processes, e.g. part time jobs, and institutions e.g. guidance and placement services, assist in orienting young people to the world of employment but these may not work for some, or, may work unsuccessfully.

Apart from the government report mentioned earlier in this section and other government, commission, and committee documents mentioned in the first two chapters there seems to be few transition studies before the 1960s. In 1959 Carter interviewed a sample of 200 boys and girls in 5 Sheffield secondary modern schools early in their last term of schooling, two to three months after leaving, and one year after leaving. Two levels of information were sought in the study, quantitative data on size of family, wages, etc., and, qualitative data on attitudes, interests, and motivations. The results are published in 'Home School

and Work' (Carter 1962) and 'Into Work' (Carter, 1966). In 1962 Leslie Paul on behalf of the Industrial Welfare Society and with financial assistance from King George's Jubilee Trust "visited schools and industrial establishments all over Britain and took part in many courses and conferences". The Industrial Welfare Society were concerned about the boys and girls in transition, the Youth Employment Service, careers masters and mistresses, bridging the gap courses and conferences, reception into industry, adjustment to industry courses, the role of further education and apprenticeships. The conclusion of their report (Paul, 1962) contains some initiatives including twenty-nine specific recommendations some of which are at least a decade ahead of their time. The report asks for steps to be taken immediately "without waiting for government or local authority initiatives, desirable though these must be". The report asks for the expansion of voluntary activity and for a National Conference of all voluntary organisations to be convened

> "with the intention of sharing experiences and problems and laying bare needs..... I (Leslie Paul) visualise a conference devoted to some practical planning rather than to a reiteration of first principles. If the result turned out to be the regularisation and co-ordination of voluntary work, the way would be opened for a further conference with industry and the statutory authorities fully participating".

Other organisations eventually entered the scene. The Schools

Council published a record of an intensive course for school leavers (Schools Council, 1970) run by a Schools Council field officer and a Youth Officer called The Working World. The Grubb Institute of Behavioural Studies, established in 1969, commenced the first of a number of transition from school to work projects by accepting an invitation in 1971 to work with a large engineering company and a mixed comprehensive school in the West Midlands to study and compare the experience of young people at school and at work. The Institute found that teachers were ill-equipped to pass on an accurate picture of working life to school leavers and encouraged the school to form a planning group consisting of the Head, Senior Teachers, Parents, a Careers Officer and Industrialists management and unions. The group organises industrial placements and maintains a pool of teachers who are well informed about the local industrial environment, it runs programmes and projects for pupils to help them understand working life in their local industries, and it is attempting to harness the experience of parents and others in helping pupils to understand life in industry. In the company, a special post was designated for a production worker to act as a tutor to all employees under 21. (Bazalgette 1972). A further research project carried out by the Grubb Institute with two schools and four firms in a deprived Midlands city focussed on organisational disjunctures between schools and firms especially the different sizes and stability work groups, different assumptions about authority and leadership at school and at work, and the effect of these on the relationship between an individual and the organisation to which he belongs. The study found that the firms were disinclined to recruit

under 18 because of poor attendance and bad manners, that staying on at school could handicap personal development, that the Youth Employment Service tended to be used only for its placement function, and that young people in transition were largely unsupported by adults (Bazalgette, 1975).

The Centre for Contemporary Cultural Studies in the University of Birmingham has working class culture as one of the main focuses of the centre's work and, in 1973, obtained SSRC support for a project on the passage of working class boys into the work situation. Although the study was intended to achieve a richer variety of results than a mere validation of a theoretical model the interest of the researchers was, nevertheless, framed in two hypotheses.

"1. In the construction of this perspective (on the world of work and his future in it), the working class schoolleaver will frame his definition of the situation primarily with reference, not to the formally organised sources of meaning about the world of work, but to the informal culture of work.

2. The transition from school to work is more adequately understood from the 'subjective meaning' perspective of the actor than by the adoption of more institutional view points".

(Willis, 1975).

After preliminary observation and enquiry the researchers selected a friendship group of 12 working class average ability boys selected from

the fourth form of a non-selective school in Birmingham and collected data from careers material, teaching material and techniques, participant observation, observation, and recorded group discussions. It is impossible to do justice to the results of this study in the space available here. The researchers found that their data confirmed their hypotheses

> "as far as their actual work content is concerned, all these jobs may be expected to be monotonous and arduous, so what matters every time is money and the possibilities of a cultural involvement and diversion. Although the careers programme imbues the 'lads' with something of the sense of the range of jobs and the importance of choosing between them, it's clear that beneath the surface the power of the cultural process we are pointing to takes hold..... they do not basically make much differentiation between jobs - its all labour".

The extensive findings of this study are reported in Willis (1975a), Willis (1975b), Willis (1975c), and Willis (1977). Willis sees no special 'problem' in the transition of the majority of working class pupils without qualifications into work, as the problem is conventionally defined, and, providing that jobs are available. For Willis, the problem of the transition from school to work is where an isolated working class boy is required to face the rigours of factory life and work without the compensation of working class cultural involvement. One other working class oriented study is worth mentioning in passing. A journalist

returned to his old school in Dagenham in an effort to track down his old school friends and afterwards to locate them and interview them. He successfully met 122 in all and gave them a questionnaire. His analysis of the responses is contained in 'Goodbye to the Working Class' (Greenslade, 1976).

A further substantial and recent transition study has been published by the Tavistock Institute of Human Relations (Hill and Scharff, 1976). The publication is in two parts. The first part was published by Tavistock in 1969 (Hill, 1969) and consisted of a study designed to find out the ideas that children held about work, their attitudes and aspirations towards work, and ideas about the role of the school. The study was based on in-depth interviews of 162 children from 7 to 20 years old, thus including children in mid latency, on the threshold of adolescence, and in mid and late adolescence. The study found that the children who coped best with the transition from school to work were those who showed evidence of being able to differentiate between internal fantasy and external reality at an early age. The study also found that the transition from school to work was best viewed not as a 'chronologically limited' event but as one aspect of a process of gradually coming to terms with reality that preceeds leaving school by many years and may continue into working life. The second part of the publication 'Aspects of the Transition from School to Work' (Scharff,1975) describes a study in which three groups of adolescents two fifth form and one sixth form, were studied together with their associated teachers, administrators and careers officers as well as the interested staff of four other schools. The study did

not include contact with families or employers. The sample was administered an I.Q. test and a projective Authority Relations test and was exposed to small group discussions, psychodrama, role play, concrete chalk and talk teaching and the importation of outside employers or school leavers. The study concludes with case notes on schools and on individual children, and discussions of issues arising from the research including childrens' and teachers' dilemmas', the psychological meaning of work and the implications for schools. The study finds that the transition from school to work tasks are too fragmented in schools and responsibility for them is too diffusely shared and recommends the creation of a bridging institution either 'carved out anew' or 'from existing institutions'.

> ".... it seems to me to be no longer speculative that there is a need for someone and some institution to take responsibility for the adolescent in transition. That the work should be a regular, highly valued function of the educational system requires that it be a priority of a person and an institution within the system. At this time, no one accepts this responsibility and the adolescent leaves school alone".
>
> (Scharff,1976, p.319).

The report also notes that the non academic student cannot buy the time he needs in order to continue to grow.

> "He is confronted with the inability of society to undertake integration of the individual's need for personal growth with

society's needs for certain kinds of productivity. At this juncture, he is often unaided in attempting to contain more anxiety than he has ever experienced before or may ever experience again".

(Schaff 1976, p.313).

2.1.5 Studies of the Entry of Young People into the Labour Market

The point at which young people enter the world of work might have been expected to attract a fair measure of interest among academics and other interested parties but until recently this has not been so. There are few studies of this subject but government departments, agencies, and the industrial training boards have now entered the field commissioning and mounting a varied programme of research some of which has brought the academic community, local and central government, local industry, and national industrial bodies into a new relationship with each other.

"In the Spring of 1974 the Research and Planning Division of the Department of Employment held a seminar in which a number of academics and professional and administrative civil servants participated. The theme of the seminar was 'the Transition from School to Work'. Its purpose was to enable the Department to learn about recent academic thinking and research in this area and to create a forum within which a fruitful interchange between academics and civil servants could take place".

(Brannen, 1975).

One of the earliest studies is that of Maizels (Maizels, 1965) which describes the entry of school leavers into employment using data collected from a local Youth Employment Bureau and from a questionnaire sent to 720 firms. The sample of 5,881 boys and girls over 15 but under 18 and had left their grammar, modern, or technical schools in the borough of Willesden during a three year period between 1960 and 1963. Maizels analyses the school leavers first placements and subsequent placements by sex and by the percentage placed by the Youth Employment Service as compared with the same statistics for the Nation as a whole. An analysis of placements by occupational groups and type of school revealed the role of particular forms of secondary education in supplying entrants to particular forms of occupation. The study emphasised the striking contrast between selective and non-selective schools in terms of occupational distribution. Further analyses of placements by size of firm, and, by size of firm and occupation revealed that

> "Not only were the great majority of boys entering unskilled or semi-skilled non-factory manual work placed in firms of 100 persons or less, but half of them began work with 10 persons or less".

The study stressed that those favoured with a selective education appeared much more likely to obtain training opportunities in working life through the discrimination of large firms in favour of grammar and technical pupils who have remained at school until 16 and have

achieved formal educational qualifications. Conversely, the study questions the quality of a beginning to working life provided by the small firm, in terms of training facilities, chances of working amongst employees of similar age, and all aspects of the working environment.

Teresa Keil and her colleagues have studied the entry of young people into work for more than a decade (Keil et al., 1963, Keil et al., 1976) in cooperation with the Department of Scientific and Industrial Research, the Leicestershire Working Party on Education and Industry, and lastly the Training Services Agency which funded an original project into induction practices in the country and young peoples experience of these. The research team sampled 40 firms providing a range of industrial types and, within each sector, large, medium, and small companies. Young people who had recently entered these firms were selected with the cooperation of managements and included groups of unskilled workers, apprentices, and trainees. Interviews were conducted with personnel managers, supervisors, and young employees using structured interview schedules at the place of work. Interim findings were produced in a working party seminar which drew attention to several important aspects of the processes involved in introducing young people to work. Using this first study as a pilot study the research team then carried out a more extensive survey of a stratified sample of 100 firms covering virtually the whole range of work organisations. As in the first study, semi-structured interviews were carried out with management and young workers. A full account of this survey is given in a report (Keil et al. 1976) and a more concise version in 'Becoming a Worker' (Keil et al. 1976).

Ashton has been curious why, after years of isolation from the world of work, young people do not generally experience more serious shock when facing the strange demands of different types of occupations. Ashton based a study on the findings of a project in which a representative sample of 1,150 young workers of both sexes were interviewed in their homes after leaving school between 1960 and 1962 and after approximately a full years experience of work. The study uses data from the 614 males in the sample (Ashton, 1973), and aims to develop a conceptual framework for the analysis of the transition processes and identifies two perspectives as especially helpful. The first stresses structural factors or attributes such as social class, type of school, and type of occupation, the second stresses an experiential perspective in which different frames of reference are developed.

> ".... that commit young people to certain kinds of occupation, and by providing them with different self-images and orientations to work enable them to adjust to their positions at work".
>
> (Ashton, 1973, p.119).

Ashton maintains that the acquisition of different frames of reference provides a "preliminary answer to the question of why young people should experience the transition between school and work as a relatively smooth process" (p.119).

Ashton's ideas are developed further in a later article which also addresses the problems of upward and downward mobility (Ashton, 1975) and, a further study reports the findings of over one hundred interviews

with employers in a local labour market concerned with the different ways in which employers use educational qualifications in the recruitment and selection of young people (Ashton and Maguire, 1978).

One of the earliest research projects sponsored by Industrial Training Boards was into the relevance of school leaving experience to industrial performance. It's purpose was to examine the experience of a sample of first year trainees to identify the effects of different types of school learning and to recommend how first year training might take maximum advantage of previous learning style and experience. The project was carried jointly by the Engineering Industry Training Board and Chelsea College Centre for Science and Education. One of the most important findings of the study was that innovative methods in mathematics teaching did not appear to be the cause of poor arithmetic attainment. On the contrary, the research found that new methods tend to enhance pupil's ability to acquire planning skills during training. (EITB, 1977). The Distributive Industry Training Board Project Unit is investigating by occupation the training and education needs of younger people joining the industry from full-time education with a view to making recommendations which will result in greater job stability, job satisfaction, higher performance, and improved attitudes. The Cotton and Allied Textiles Industry Training Board is investigating the views of young people about what they consider desirable in a career in the textile industry, and, the Clothing and Allied Products Industry Training Board have analysed the attractiveness of the clothing industry to young entrants with the aim of explaining

young people's recruitment to and turnover in the clothing industry in four areas of Britain. One of the most interesting research projects involving an industrial training board has been the combination of the Chemical and Allied Products Training Board, the City and East London College of Further Education and the Grubb Institute who came together to plan a 'Gateway Course' designed for young office workers. This resulted in a further development of the 'Industrial Tutor' model, described earlier in connection with another Grubb Institute school to work consultancy (Bazalgette, 1975) into an 'Industrial Coach' model. A full account of these developments is given in 'The Industrial Coach: An experiment in work-based education' (Grubb Institute, 1976).

A small but influential literature has grown around young peoples' perception of the function and usefulness of the Youth Employment Service. The most widely quoted studies are by Jahoda and Chalmers (Jahoda and Chalmers, 1963a; Jahoda and Chalmers, 1963b) in which the authors draw attention to the discrepancy between the official version of how the service is supposed to operate and young peoples' perceptions of the services' function and recollections of how helpful and useful it was. At the end of their second article the authors conclude...

> "It is fortunate, therefore, that a majority of leavers form preferences which are broadly compatible with their own capacities, so that YEOS feel able to back them; for the evidence summarised here shows the complexity of the task facing the YEO. In cases where an unsuitable preference is met, the obstacles in the way of successful

guidance may be, if not greater, at least more subtle, than commonly realised. The chances of overcoming them in the course of a single interview, during what the YEO (who wants to offer guidance) and the leaver (who wants help to get the job of his choice) meet face to face for the first time, are bound to be slender".

(Jahoda and Chalmers, 1963b)

A more recent study based on 103 pupils in 24 schools found that careers advice makes only a marginal contribution to finding a job and is offered too late to be effective (Collett 1978).Other publications critical of the performance of the Youth Employment Service have been discussed elsewhere in Chapter I (Also the Ince Report, 1945; Young Fabian Pamphlet 14, 1966).

2.1 This section is focused more on young people themselves than on the institutions and process of which they are a part. The section sub-divides into Studies of Young Peoples' Interests, Aspirations, and Attitudes towards Work, and Studies of Occupational Choices.

2.2.1 Studies of Young Peoples Interests, Aspirations, and Attitudes towards Work

In view of the diversity of studies included here and the difficulty of grouping them together the approach to this part of the literature review is more or less chronological. One of the earliest relevant studies is

that of Wilkins on incentives (Wilkins, 1949) in which the eight incentives were ranked by 300 men between 18 and 19 years of age and of different levels of intelligence. The study purports to show that intelligence conditionsthe young worker's attitude towards work and the incentives he regards as worth working for. The study suggests that workers of upper intelligence levels have longer term incentives whilst those of lower intelligence have short term incentives and that the incentives of those of lower intelligence are associated with work itself whereas the incentives of those of upper intelligence are not. The researcher admits that the original choice of items was 'almost arbitrary' and that psychometric techniques used in the study may have produced results which do not correlate with actual work situations. Research of a different kind is discribed in the Report of the Central Advisory Council for Education on Early Leaving based on a sample of 10 per cent of all maintained grammar and direct grant schools. Headmasters were asked to fill in a questionnaire on each pupil designed to find out what factors influence the age at which boys and girls leave secondary schools which provide courses beyond the minimum school leaving age.

> "160. We have been impressed above all with the far reaching influence of a child's home background..... and we have found that from children of parents in professional or managerial occupations at one extreme to the children of unskilled workers at the other there is a steady and marked decline in performance at a grammar school, in the length of school life, and in academic promise at the time of leaving."
>
> (H.M.S.O. 1954)

The context of this report was one in which the demand for trained manpower exceeded supply, especially in the sciences and technologies, and the report concluded that there was an immediate need for more sixth formers than were available as trainees for various professions. The recommendations of the report were extensive and wide-ranging including a large number of recommendations for legal and administrative action to reduce 'premature' leaving although the report noted that

> "The value of a school life extending beyond 16 depends on the character, and particularly the intellectual ability, of the particular child".
>
> (H.M.S.O., 1959)

The aspirations of school leavers themselves were studied by Veness using a sample of 1302 boys and girls from modern (by far the majority) technical and grammar schools (Veness, 1956). The context of this study was much the same as that for 'Early Leaving' namely that for every unemployed person there were two vacancies, competition for young workers, anxiety that high wages were taking young workers away from skilled trades, school, and further and higher education, and a shortage of craft apprenticeships. The sample were asked to complete a questionnaire in school and two weeks later, were interviewed. The researchers felt unable to ask for information about the fathers' occupation and, at the request of heads, withdrew questions about marriage and children from the questionnaire in two schools. The identification of

'ambitiousness' was a principal aim of the enquiry. Another survey of aspirations conducted in junior, modern and grammar schools in the Midlands under the supervision of Musgrove (Musgrove, 1964) involved 616 children among whom the researchers found similar attitudes and a level of realism concerning job-expectations in keeping with the findings of the Veness study. They found that even the fantasy job choices of boys were 'distressingly mundane' and that they had an accurate appreciation of likely employment prospects and earnings (Liversidge, 1962).

Discussion of the school leaving age and the prospect of raising it added a new dimension to research activity.

> "A longer secondary school course will inevitably aggravate any tension and disagreements that already exist in what, ideally, should be a cooperative enterprise between teachers, pupils, and parents. It is fundamental therefore to consider what each of these groups conceives to be the main objectives of secondary education and whether their views to any extent conflict"
>
> (Schools Council, 1968).

Thus the interests, aspirations, and expectations of the young became not only of interest in their own right, and, in relation to employment, but also of concern in so far as they differed from those of others who entertained legitimate expectations concerning the objectives of education. A joint research venture involving the Schools Council and

the Nuffield Foundation addressed this problem and published their views in a working paper (Schools Council, 1967) but the most startling differences occuring between the different groups were shown in the Schools Council's Enquiry 1 (Schools Council, 1968) in which large differences of opinions between teachers on the one hand and pupils and parents on the other were shown to exist as well as important differences between teachers and heads. The greatest differences were apparently connected with the importance of examination achievement and the importance of school work of direct use in jobs.

The psychological and sociological factors affecting subject specialisation were examined by Butcher using a sample of 1,150 Scottish school children, 70 variables were measured including indices of ability, school attainment, personality, general interests, interest in science, and biographical measures. Factor analysis yielded nineteen factors the first ten being stability, scientific and mechanical orientation general attainment, introversion and extraversion, verbal reasoning, mathematical aptitude, literary interest, interest in social work, and aesthetic interest. The main purpose of the study was to make a single estimate of the suitability of each pupil for a career in Science and to discover to what extent future performance and later choices are consistent with such an estimate of suitability (Butcher, 1968).

An alternative view of the disposition of young people towards different kinds of formal knowledge is provided by Ward in a study of

43 girls designed to yield "insights into what girls understood for various aspects of their lives". The perspective of this research is that studies of 'school' or 'ability' cannot adequately account for attitudes to formal knowledge among girls and that such attitudes are formed in the context of girls' perceptions of reality. The research finds that....

> "The important, immediate, and pressing area of everyday reality for these girls lies in their relationship with other adolescents. Other things, particularly the childhood past, the marital future, the wider if still local science of town and industry, the national and world scene, formal subjects and disciplines seen as finally known, and the world of technology and technological media, do not impinge on these girls awarenesses of life in a way they regard as important".
>
> (Ward, 1973)

It is virtually impossible to summarise briefly the results of this study and the conclusion of the report needs to be read in full if the findings and their implications are to be understood. The study is literally full of insights into the education process some of which are very harsh.

> "But, in the mass urban school, the accompaniment of all skill with excessive verbal reinforcing commentary, and the lack of articulation between women teachers and the trades or professions where the skill constituting their

subject is most deeply found, forces formal learning content into an inert, dead framework detached from its practitioners because of the necessity, in mass situations and with prevailing social attitudes, of treating it as a commodity".

(Ward, 1973)

The third follow up of the National Birthday Trust Fund sample of 17000 children (which commenced in 1958) took place in 1974 as part of the National Child Development Study. NCDS children were part of the first group of school children required to remain in school until the age of 16 and the third follow up study tried to find out how they and their parents felt about this. In addition the study group was given a medical exam, a questionnaire, their parents interviewed, and the schools were asked to complete a questionnaire. The results of the study are reported in 'Britains 16 year olds' (Fogelman, 1976) 30 per cent of the pupil sample said that they did not like school but only 11 per cent thought it a waste of time. One third of parents were dissatisfied with the child's school. Two thirds of pupils had firm ideas about the job they wanted to do and 58 per cent were certain of the job they were most likely to do. Parents and school were the most frequently mentioned sources of information about jobs, and, pay and variety were the aspects of employment most often mentioned as important.

The Central Youth Employment Executive mounted a youth employment study with the help of the Office of Population Consensus and Surveys Social Survey Division using a stratified sample of 1700 15-16 year old boy

school leavers to provide information about the sort of help used by the sample in deciding what to do and in finding work. There are three field stages, just before leaving school, six to eight months after leaving, and eighteen months after leaving. The report on the first stage has been published as Looking Forward to Work (Thomas and Wetherell, 1974). No overall summary of findings is presented although the main results can be found in the chapter summaries. A similar study on 2133 girls was carried out by the OPCS Social Survey Division on behalf of the Department of Education and Science. All the girls were completing the fifth form year at a maintained secondary school in 1970—1971 and the main object was to investigate the aspirations of girls in relation to their ability. Aspirations were determined from questionnaire responses and ability was measured using test AH4. This study is published in a report entitled 'Fifth Form Girls their Hopes for the Future' (Rauta & Hunt, 1975) and the results show that home background and school contribute independently to level of aspiration, that privileged girls have aspirations above average for their ability, that girls from middle class homes aim highest in relation to ability, and that girls with different levels of aspirations tend to have different interests values and aims in life. Of interest, also, is the finding that the majority of girls have a vocational approach to their education.

Another study in which the emphasis is placed more on pupils views of themselves in their social environment, using boys rather than girls, is that of Birksted who concentrated on getting to know 8 adolescent boys, first in a Youth and Community Centre, then at school,

and finally in the course of every day life. The research technique used was participant observation glorified somewhat into what Birksted terms 'cognitive anthropology'. The findings are most interesting. Birksted found that the boys studied did not 'see' school as playing a meaningful organisational part in their lives. They saw examinations and examination work as relevant only in so far as it related to future occupational plans and school failure was not related to their broad view of life but was situation specific. Birksted summarised the boys view of school as a 'waiting-room' to real life.

Another major survey sponsored by the Department of Education and Science was carried out by the Institute for Research and Development in Post-Compulsory Education at Lancaster University. Two samples were drawn, one of 1000 pupils completing their fifth year in 1975 in 50 schools stratified by region, school type, and sex, and another of 2500 pupils taking 'A' levels in 1975. This survey examined the motives that lead young people at the ages of 16 - 18 to continue in full-time education or to seek employment. The context of the study was the slackening demand for post compulsory educational opportunities. The researchers hypothesised that pupils' perception of the economic advantages of different courses of action would be important but found that academic factors and attitudes to school were the most closely associated with leaving school or staying. Another important finding was that

"amongst the fifth formers there was a group of "hard-core" leavers consisting of over a third of the boys and nearly a quarter of the girls who claim never to have considered staying on beyond the minimum school leaving age..... At the other extreme a third of the boys and well over 40 per cent of the girls were proposing definitely to continue full-time education either at school or in a further education college.... This leaves about a third of the boys and a third of the girls who may be considered susceptible to influences and pressures at or near the time of leaving".

(Williams & Gordon, 1976, page218).

Two important studies of young peoples views of work must be mentioned. The first consisted of interviews with 200 young employees in a Midland Engineering Company designed to elicit responses concerning eleven areas of interest leading to measures of satisfaction in relation to the areas and with the whole job. The results are reported in 'Youth into Industry' (Simon, 1977) and show that satisfaction with jobs declines with length of service up to the age of 21, that expectations of work in industry are often unrealistic, that young people are anxious about the prospect of having boring repetetive jobs for a long period of their lives, that the nature of job choice is arbitary, and that anxiety about the future is one of the main problems facing the young. The report concludes by suggesting that industry can play a more effective part in 'developing' people, must accept that people differ psychologically and socially, and should not blame or try to change earlier events and

experiences.

The second study examines the common perception of rising job expectations among the young in relation to decreasing job opportunities and prospects. The study used a sample of 398 16 year old pupils in 10 Sheffield Comprehensive Schools. All pupils completed a questionnaire at school and 244 of the original sample completed postal questionnaires after gaining full time employment. The results showed that young people's job choices were realistic in terms of the availability of jobs in Sheffield and in terms of the quality of the life in the jobs sought.

> "There is no evidence that the sample of young people found work, or the job market, different from what they expected except for the expectations of skill variety held by girls".
>
> (Paul, 1979,)

The study found that job quality and job satisfaction were related and that there was no evidence of a generally low level of satisfaction among the sample. The study included a number of other useful investigations including experiences of induction, attitudes to management, workers and trade unions, understanding of participation and industrial democracy, apprenticeships, and sex-typing of occupations. The study points out also that those advising the young may sometimes do so using the wrong arguments. For example by stressing the long term benefits of an apprenticeship instead of the immediate advantages of better quality work and higher job satisfaction.

2.2.2 Studies of Occupational Choice

There are very few studies of the occupational choices of British school children and, with the exception of two of the earliest examples of the genre (Valentine and Ritchie, 1927; Ritchie, 1930) and possibly one or two others, those that exist can easily be located on the same library shelf. They have all been published in Occupational Psychology.

Miss Freeston's study arose out of work she had been doing with over a thousand children on the wider subject of their conceptions of adult life. One hundred children, fifty boys and fifty girls between the ages of five and thirteen, made a drawing of themselves as they thought they would be like when they were grown up. They also produced written answers to a questionnaire (Freeston, 1939). Freeston classified the jobs portrayed in the drawings and was clearly surprised to find that the vast majority of the children had obviously given much thought to the matter before the exercise and portrayed themselves in some detail doing jobs that were entirely consistent with customary forms of employment for a particular sex. Freeston found that the jobs portrayed so realistically in the drawings often clashed with the jobs elicited by means of the written answers and was led to speculate from which source the inspiration for the drawings sprang. The speculations led to a consideration of unconscious or fantasy choices, expressed in painting, as opposed to conscious or realistic choices. Freeston suggested that writing, by virtue of being a difficult labour for many children, recalled them to reality. Further analyses postulate 'possible', 'unlikely', and

'impossible' choices and these categories were manipulated in relation to age and sex. Freeston concluded....

> "This surprising conclusion, the reverse of what might have been expected, admits of only one interpretation - that though the period 8-14 is one in which the child's experience and interest in a future career widens, it is also one in which his estimate of what constitutes a 'possible' career for himself grows less reliable".
>
> (Freeston, 1939, page 232).

The intelligence quotients of the children were not known. However, Freeston noted that poorer intelligence tends to correlate with a poor environment and that such children are likely to have the necessity of earning a living brought to their attention at an early age. Also, these children may be expected to make more realistic choices than brighter children since, by definition, they are less imaginative and ambitious. The study is full of other insightful points of both psychological and historical interest and it is doubtful if many conceptual or methodological advances on Miss Freeston's work have so far occured in the field of occupational choice.

Two other early studies of occupational choice are of interest. Mercer found that boys and girls were orientated differently when choosing a career and showed noticeable differences in attitudes either through differences in vocational opportunity or from innate or acquired differences in interests. However it was not suggested that girls interests were more limited in range than boys. On the contrary, all the major categories of work interest were included. The article concludes with advice to

vocational guidance personnel to maintain a wide conception of spheres of work for girls, and, advice to employers so that those girls wishing to maintain careers after marriage may be regarded "as potentially of the greatest all-round social value" (Mercer, 1940). Stott gives more detail about the differences in attitudes of boys and girls. She found that girls have less occupational knowledge and take a more horizontal view of careers. That is they are more concerned with the level upon which they wish to be placed than with the ladder that they hope to climb. Girls tend to be more diffuse in their occupational ideals and follow less systematic routes than boys although boys often misconceive their destinations. Girls are less ready to accept their own limitations and are prone to daydreaming. Boys are more ambitious and differ from girls in what they expect to get from their careers with boys concerned more with extrinsic rewards and girls more with their own emotional satisfaction. These 'findings' are based on a sample of approximately 2,500 boys and girls who presented themselves to the National Institute for Industrial Psychology for Vocational Guidance. The paper concludes with possible reasons for the differences described including parental attitude, prospects of marriage, influence through the media and other environmental factors.

Two separate Ph.D. theses provided the impetus for major studies of the formation of occupational choices among secondary modern school children and grammar school children. The first, (Jahoda, 1952) draws attention to the fact that previous studies had concentrated on vocational guidance aspects of job choice, while the choices of boys

and girls at school had been relatively neglected. Jahoda's sample consisted of 56 boys and 77 girls from four secondary modern schools in Lancashire who completed a job quiz, a sentence completion exercise and some job attitude tests. More data was provided by the Youth Employment Officer and each leaver was followed up in employment. The results revealed what boys and girls felt to be important characteristics of jobs, attitudes towards different kinds of occupations including the differences between boys and girls and the formal and informal determinants of choice. The results showed that good prospects, a safe and steady job, and friendly work companions were rated above good pay by the sample, that popular jobs with boys tended to be skilled manual ones whereas girls liked office and shop work, being opposed to factory jobs. The greatest influence on boys choices were parents, and, on girls choices were siblings and older friends, followed closely by parents. Personal and school activities influenced boys more than girls and adult relatives influenced both but the Youth Employment Officer influenced less than 5 per cent of boys and girls in this sample.

The second study (Chown, 1958) this time of grammar school pupils sampled 2 boys and 2 girls schools in two different education areas and sampled 24 children aged 13-18 in each school. Each subject was given a questionnaire and an individual interview, homes were visited and parents interviewed. The aim of the enquiry was to investigate the applicability of Ginzberg's stages (Ginzberg, 1951) to English Grammar School children and to compare the external and internal influences operating on children in the grammar schools with those operating on the children in Jahoda's secondary modern schools. The results showed that

most of the choices held by the 16 year olds had been made at school since the age of 11, that girls decided earlier than boys, and that there were early and late deciders in each group. The results suggested that the stages of choice suggested by Ginzberg do not apply without substantial modification, particularly to take account of second thoughts which cause many job choices to be modified. Some children seemed to have an inadequate knowledge of jobs and parents were the most important single factor influencing choice. Parents were less worried about careers for their daughters than their sons and felt unable to advise where questions of ability were concerned. School teachers played an important part in helping children to make choices but the Youth Employment Officer was not such an important influence.

A more recent study of career choices by grammar school boys has been reported by Hill (Hill, 1965) after an enquiry using a sample of 583 boys starting an 'A' level course in 14 schools selected at random from 7 counties. This study differs from Chown's in that only boys are sampled, also, unlike Chown's this sample is drawn entirely from boys in transition between the fifth and sixth forms (two thirds of Chown's sample were selected from third and fourth forms) and, finally, only questionnaire data was collected in this study. The study explores the advice given to boys from different adults, the bases of career choices, including the influence of hobbies, relatives, and friends, the stated reasons for choices, and the effect of socio-economic background. A general finding of the study was that more than half of the sample were undecided about their careers and that these pupils had a greater need than others in the sixth form for advice and should always have had more guidance.

It has not been possible to include any more recent studies in occupational choice of young people as no such studies have been found. It may be that the influence of the american studies and theories of Ginzberg (Ginzberg, 1951) and Super (Super, 1953) have become so pervasive in British thinking about young peoples career choices that it is assumed that the complex issue of occupational choice is now more or less understood and that adequate theoretical formulations exist upon which necessary guidance programmes can be based. If such an assumption has been or is being made it will need to be examined carefully and then challenged. This study itself provides grounds for such a challenge.

2.3 Theories of Occupational Choice

The impact and pervasiveness of the work of two American psychologists in the field of occupational choice, Ginzberg and Super, have tended to detract from the fact that many distinguished social scientists both in the United Kingdom and in the United States have found theoretical interest in this area. It can be said that there are two traditions American and British, with marked differences between the shifts in their theoretical centres of gravity. The principal contributors to these traditions are listed below with dates and theoretical orientations.

American		British
Form (1946)	Social Psychology	
Ginzberg (1951)) Super (1953))	Development Psychology	
Blau et al.(1956)	Socio-psycho-economic variables	
		Keil et al. (1966) Socialisation
Blau & Duncan (1967)	Logical-statistical	Musgrave (1967) Role Theory
		Ford & Box (1967) Exchange Theory
		Roberts (1968) Developmental Psychology
		Chester (1968) Vocational & Educational Psychology
Crites (1969)) Lofquist (1969) et al.)	Correspondence Satisfactoriness Satisfaction	
		Ashton (1973) Experiential

The American tradition appears to commence with attempts to enrich social stratification theory with social psychological formulations (Form, 1946) and then to proceed along the lines of developmental psychological stage theories (Ginzberg, 1951; Super, 1953). Then, to the psychological perspective, was added the socio-economic environment within which psychological activity takes place (Blau et al. 1956) and, subsequently, causative models of the variables determining career paths were developed using the statistical techniques of path analysis (Blau & Duncan, 1967). More or less at the same time an alternative

American approach was developed based on the idea that occupational choice was fundamentally the implementation of a 'work personality' in a working environment. (Crites, 1969; Lofquist et al. 1969).

On the other hand the British tradition commences from a sociological structural functionalist position with the processes of socialisation (Keil et al., 1967), passes first through a more developed sociological framework incorporating role theory (Musgrave, 1967), and then through a brief flirtation with the psychological theories including exchange theory and theories of vocational and educational psychology, (Ford & Box, 1967; Roberts, 1968; Chester, 1968), before returning to sociology, but this time emphasising the phenomenological as opposed to the positivist theoretical aspects.

Form's study notes the increasing interest of the social sciences in the problems of social stratification and proposes the development of an occupational social psychology through social stratification principles that recognises the fundamental importance of the social valuation placed by individuals on their own and on other people's occupations. (Form, 1946). The study goes on to illustrate the use of selected objective devices for measuring occupational ideologies including ranked prestige hierarchies, occupational and educational aspiration inventories, other social-psychological attributes among various groups elicited from an inquiry into how they spent their leisure time, and related economic attitudes. The accumulated results do not allow for the formulation of a specific theory and the author concludes that

"a large number of research studies must be made on a regional basis before we can predict occupational attitudes and behaviour in specific situations".

Ginzberg and his colleagues examined three main approaches to theories of occupational choice. The first, accident theory, implies that the major determinants of the choice people make are outside their control. Ginzberg argued that this theory correctly draws attention to external forces in the choice process but deals inadequately with the ways in which individuals take account of and respond to external factors within a range of options that they perceive as open to them. A second theory, impulse theory, derives from psychoanalytic principles and maintains that individual behaviour, which includes career choices, has to be understood in the context of the historical and unconscious phenomena and processes underlying all psychological activity. Ginzberg argues that many occupations include in their membership individuals showing a wide variety of psychological and emotional characteristics and that, self-evidently, individuals are unable to enter occupations unless there are opportunities for them to do so. A third approach is described by Ginzberg (Ginzberg 1951) more as "a group of implicit theories than as a single one". (p.23) which emanates from the field of vocational guidance in which counsellors employed diagnostic procedure borrowed from the psychology of individual differences and personality in order to assess the dispositions, strengths, weaknesses, and capacities of their clients. Ginzberg argues that counsellors became disatisfied with their reliance on aptitude and

other tests and turned again to psychology to discover the relationship between interests and occupations and the notes that counsellors generally take into account "the reality factors in the environment of the individual" but have neglected the question of why many adults and adolescents remain uncertain about their interests and choices. Ginzberg also notes that the role played by values in the occupational choice process has been overlooked with the exception of SPranger (1928) and Vernon and Allport (1931). At the conclusion of his review of current theories, Ginzberg states that the counselling group is "not functioning on the basis of a coherent theory of occupational choice" and goes on to state his own objectives in the study.

> "It is our major objective to develop a theory so comprehensive as to permit the identification and analysis of the major factors in the vocational decision-making of the individual. Our concern with establishing a broad framework grows out of the conviction that the process can be delineated only as a result of understanding how internal and external factors act and react on each other".
>
> (Ginzberg, 1951)

The sample constituted 64 individuals who were given eight interviews at eight different stages over the age range 11-24 years. Ginzberg admits that his sample were, on the whole, a highly favoured group having considerable freedom of choice. The researchers therefore obtained two further samples from populations whose choices were likely to be more restricted, 17 boys and 10 girls primarily interested in

marriage, making a total sample of 91. The theoretical conclusions were as follows.

> "The outstanding conclusion from our findings is that occupational choice is a developmental process; it is not a single decision, but a series of decisions made over a period of years. Each step in the process has a meaningful relation to those which precede and follow it"
>
> (Ginzberg 1951)

Ginzberg goes on to point out two generalisations that follow from the theory, one, that the process is irreversible in that later decisions are limited by earlier decisions, two, that the process ends in a compromise based on maximum satisfaction in relation to what the individual has discovered about his abilities, interests, capacities, and values in relation to the opportunities and limitations existing in the real world. The process of occupational decision making, it was found, could be analysed into three periods - fantasy, tentative, and realistic. The fantasy period is characterised by arbitrariness and lack of awareness of reality. He or she believe they can be whatever they want to be. The tentative period is characterised by an emphasis on probable future satisfactions rather than immediate satisfactions, and, an emphasis on subjective interests and values. Individuals often recognise that important external factors are missing from choices made in the tentative period. The reality period, on the other hand, is dominated by external considerations so much so that the integration of internal

and external factors becomes so difficult that individuals recognise the necessity of compromise solutions.

Ginzberg's work and theories are further developed in later works (Ginzberg, 1964) and the major part of the theory is restated with important modifications in 'The Manpower Connection' (Ginzberg, 1975) after a further two decades of research in manpower economics much of which have been focussed on the "occupational problems of disadvantaged populations".

> "The original formulation was based on a developmental approach; my reformulated theory stands on sociopsychological formulations. I have sought to make room not only for the individual as the principal actor in the decision - making process, but also for external forces, past and present that set the parameters within which the individual must make his choice".
>
> (Ginzberg 1975)

Super found that Ginzberg's 1951 theory had four limitations. It did not adequately take into account previous work, especially the work on occupational interests and interest inventories. The use of the word choice was misleading because it meant different things to different individuals at different times and in different circumstances. A false distinction was made between choice and adjustment, which Super envisaged as a continuous process, and, the nature of the compromise between interests and abilities on the one hand and opportunities and

constraints on the other was not described, nor was the way in which compromise is effected. Super reviewed the available theories and research findings in the area of occupational choice and proceeded to state his own 'Comprehensive' theory in the following ten propositions.

1. People differ in their abilities, interests and personalities.

2. They are qualified, by virtue of these characteristics, each for a number of occupations.

3. Each of these occupations require a characteristic pattern of abilities, interests and personality traits, with tolerances wide enough, however, to allow both some variety of occupations for each individual and some variety of individuals in each occupation.

4. Vocational preferences and competencies, the situations in which people live and work, and hence their self concepts, change with time and experience (although self-concepts are generally fairly stable from late adolescence until late maturity), making choice and adjustment a continuous process.

5. This process may be summed up in a series of life stages characterized as those of growth, exploration, establihsment, maintenance, and decline, and these stages may in turn be sub-divided into (a) the fantasy, tentative and realistic phases of the exploratory stage, and (b) the trial and stable phases of the establishment stage.

6. The nature of the career pattern (that is, the occupational level attained and the sequence, frequency, and duration of trial and stable jobs) is determined by the individual's parental socio-economic level, mental ability, and personality characteristics, and by the opportunities to which he is exposed.

7. Development through the life stages can be guided, partly by facilitating the process of maturation of abilities and interests and partly by aiding in reality testing and in the development of the self concept.

8. The process of vocational development is essentially that of developing and implementing a self concept: it is a compromise process in which the self concept is a product of the interaction of inherited aptitudes, neural and endocrine make-up, opportunity to play various roles, and evaluations of the extent to which the results of role playing meet with the approval of superiors and fellows.

9. The process of compromise between individual and social factors, between self concept and reality, is one of role playing, whether the role is played in fantasy, in the counselling interview, or in real life activities such as school classes, clubs, part-time work, and entry jobs.

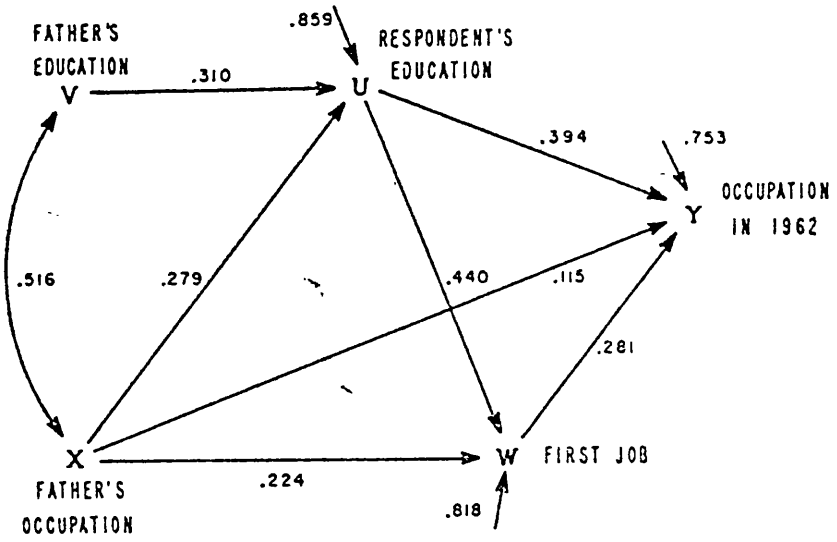
10. Work satisfactions and life satisfactions depend upon the extent to which the individual finds adequate outlets for his abilities, interests, personality traits, and values; they depend upon his establishment in the type of work, work situation, and way of life in which he can play the kind of role which his growth and exploratory experiences have led him to consider congenial and appropriate.

At about the same time Super conceived and directed a Career Pattern Study, a twenty year study designed to follow up a sample of male adolescents until they reached mid-career. The researchers collected trait and factor data as well as data on vocational maturity, a concept that underlies the systematic change of vocational behaviour as the individual grows older. Super subdivided the total span of vocational development into five stages,

growth, exploration, establishments, maintenance, and decline, corresponding to childhood, adolescence, early adulthood, late adulthood, and senescence (Super, 1957). Super later reviewed research on self concepts and the processes by which the self concept influences vocational development. (Super, 1963). The work led to a self-concept theory of vocational development involving the formation, translation, and implementation of the self-concept. Super argued that the self concept is an object of curiosity during the exploration stage leading to differentiation, an awareness of the separateness of oneself from other selves, role experimentation and reality - testing to strengthen or modify the self-concept, tentative translation of the self-concept into occupational terms and, finally, full implementation of the self in a work role. Blau et al. (1956) presented a framework combining psychological, sociological, and economic variables such that the social and economic conditions of selection could be taken into account together with the personal development of individuals. These researchers envisage choice as motivated by two main sets of considerations. The first relate to the rewards associated with different possible options whereas the second relate to the perceived likelihood of being able to realise a particular option. Experiences in education and in the labour market modify preferences and expectations. Individuals attempt to implement their preferences whilst others act as gatekeepers and selectors. The gatekeepers and selectors are guided by the characteristics of the applicants, pre-set standards within the organisation, and by individual judgements and estimates concerning the need to raise or lower standards, or wages, in order to ensure the supply of recruits. Blau and associates suggest that the appropriate weightings to be

given to these variables should be determined by empirical research on particular sectors of the population and in particular labour markets.

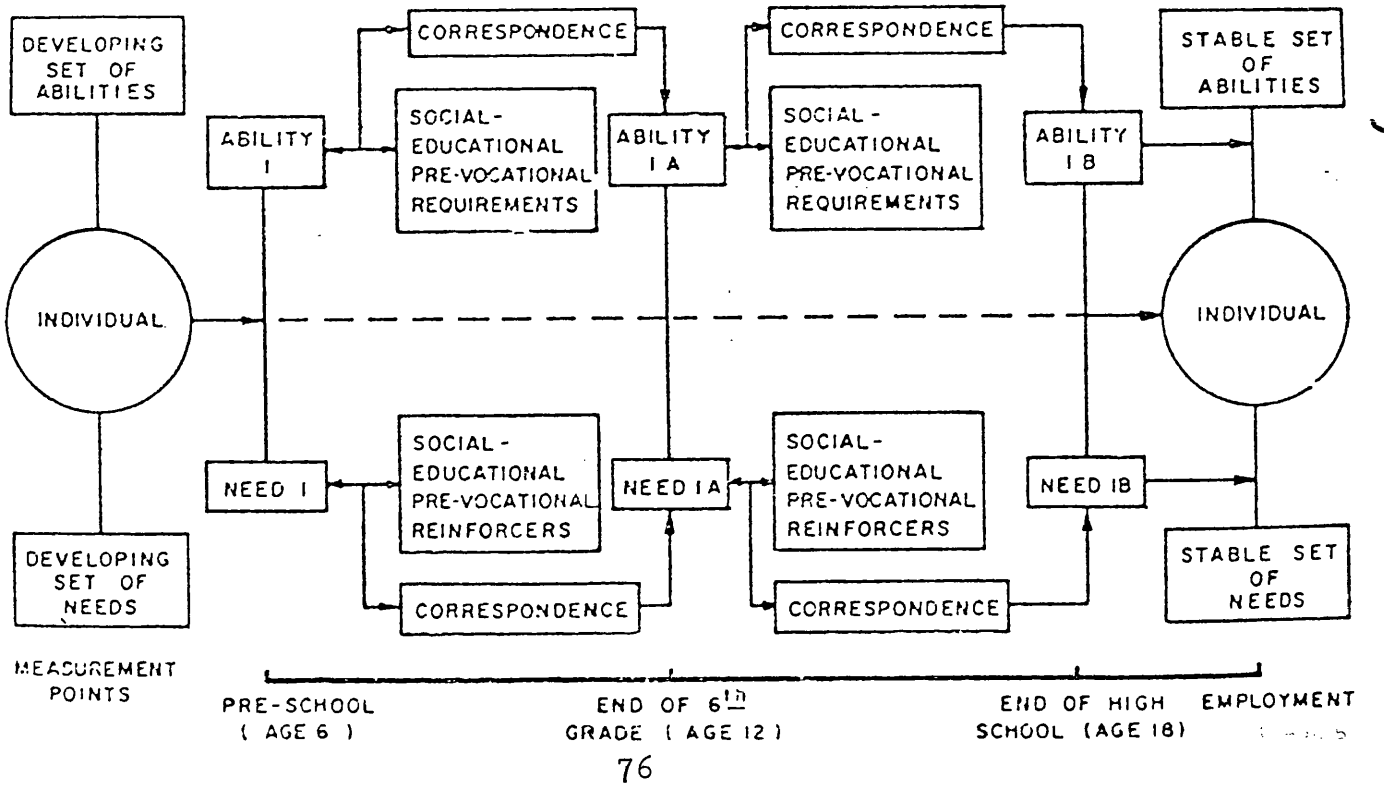
The first model of career paths was proposed by Blau and Duncan (1967) based on data from a sample of 20,700 men from 20 to 64 years of age in 1962. The model suggests that paternal education and occupation have a direct effect on respondents first and subsequent jobs and that each respondent's educational level and first job affect his current employment. Other variables, accounting for residual variation, also have a causative effect but have not been observed, are not known, and cannot be incorporated into the model. The direction of the lines in the diagram show the direction of causation and the numerical values resemble correlations.



Whilst this is not the place to enter into the complexities of path analysis the model has, nevertheless, been criticised since it is presented as a network of causal connections between a set of variables which occur at different points in time. However, correlation coefficients are not normally understood to indicate causation but as indices of covariation.

Another problem is the large amount of unexplained variance in the model and, finally, tests of statistical significance are not produced and it cannot be asserted that one correlation is significantly higher than another. (Crites, 1976) There is however, still considerable value, for the purpose of theory construction, in demonstrating relationships between variables some of which have temporal priority over others.

The last theory to be discussed in this section on the American tradition is Work Adjustment Theory and the individuation of the work personality. According to this theory, individuals possess both capacities to perform a variety of tasks, and, needs which are motivating over a wide range of behaviour. Abilities and needs together constitute a work personality which seeks implementation in a corresponding work environment. Correspondence in the suitability of the individual to the work environment and vice-versa, the goodness of fit between the man and the job. Before correspondence can be achieved a process of individuation needs to take place in which a stable set of mature abilities and needs are developed from rudimentary early forms. A diagramatic representation of the individuation process is given below.



The theory postulates a relationship between abilities, needs, correspondence, satisfactoriness, and satisfaction and a number of instruments have been developed to measure these (Lofquist and Dawis, 1969). Whilst this theory is not usually presented in the context of occupational choice its relevance to the early stages of occupational development is worth noting and, possibly, investigating further.

The British tradition commences with paper by Keil et al. (1966) on Youth and Work: Problems and Perspectives in which they summarise previous theoretical approaches to the adjustment of young people to working life in Britain and on the continent. The writers complain that the existing literature 'offers many valuable insights' but 'lacks coherence' and go on to put forward an alternative approach based on the idea of entry, into the world of work as a 'process'.

> "An indication of the nature of this process may be given in the following way: (a) the socialisation of the young person to the world of work together with (b) previous work experience, and (c) wider social influences, lead on the one hand to (d) the formulation of a set of attitudes towards, and expectations about, work. (a), (b) and (c) together, and (d) provide the explanation for (e) the actual job entry, and from this (f) experiences as a worker lead to a situation of (g) adjustment/non-adjustment for the young worker which can be expressed either by a measure of satisfaction, by a reformulation of (d) above, by ritualised dissatisfaction, or by job change".
>
> (Keil, et al. 1976)

Miss Keil and associates then relate the research already done to the different aspects of their new process and enlarge further on each aspect revealing gaps in current knowledge.

Musgrave found the framework suggested by Keil et al. 'Worthwhile in itself' but 'limited and would be much more valuable if it were set in the framework of a general theory of occupational choice' (Musgrave, 1967). Musgrave asserts that there is no sociological theory of occupational choice and that the psychological theorists Ginzberg and Super have missed much of sociological relevance. He shares the doubts of Chown that Ginzberg's work 'seems more applicable to the U.S.A.' Musgrove proposes his own conceptual framework in which the focus is socialisation 'seen strictly as learning to take roles'. The main stages in the new framework are (1) Pre-work socialisation in which family, school and peer group play an important part, (2) Entry to the Labour Force, at which point preferences become choices and choices match the selection processes of industry and commerce, (3) Socialisation into the Job and (4) Job Changes. Musgrave points out that this framework is backed by findings from both British and American literature and suggests that it should be possible to use it to order the literature and to identify problems for further research.

Ford and Box take issue with Musgrove's assertion that there is no sociological theory of occupational choice (Ford and Box, 1967).

"It is our aim in this paper to demonstrate that, despite the fact that the explicit propositions of such a theory have not yet been stated formally, there is at present considerable consensus among sociologists on an implicit theory of occupational choice. We shall first show how the various discussions of the process of occupational choice have been converging around one major theme, then we shall make explicit the propositions involved in a sociological theory arising from this theme".

(Ford and Box, 1967)

The authors maintain that sociological opinion has been converging around the idea that occupational choice is a process of reconciling values and expectations.

"This whole body of work can be summarised as entailing the view that occupational choice represents the culmination of a process in which hopes and desires come to terms with the realities of the occupational market situation".

The authors are content to take values as given without enquiring further into the processes through which they may be acquired and to view the choice process as a rational process in which a person will choose between alternative actions one in which p x v is the greater, where p is the probability of the action's success, and v is the value of the reward. They then proceed to describe the results of an experiment

to test four hypotheses derived from the theory. The results provided an encouraging indication of the predictive power of the theory. The authors conclude as follows.

> "Surely, one might argue, the transition from school to work in most cases cannot be described as choice at all? These children do not know the full range of jobs open to them and have no efficient criteria for differentiating one job from another ..... However the school leaver has acquired his particular values, however inadequate his perception of the available jobs and the conditions within them, and however faulty his perception of his own chance of attaining employment in any of these jobs, it is still possible to determine the extent to which he attempts to gain employment in the job which he considers both available to him and consistent with his particular values".

A study of the occupational behaviour and attitudes of young people was conducted in 1965 using a random sample of 196 males between 14 and 23. The aim was to test three hypotheses derived from the theories of vocational development proposed by Ginzberg and Super. (Roberts, 1968). It was not possible on the basis of the results either to confirm or reject the hypotheses and it was suggested that the failure of a consistent pattern of results may indicate that different modes of career

development are to be found in different populations. The study finds that the theories tested "cannot be accepted as satisfactory accounts of the processes that are involved in the entry into employment". (Roberts, 1968, page 173). The author suggests that occupational choice does not play the key role in the entry into employment by British school children and that the proposition that individuals choose jobs and then enter them needs supporting empirical evidence before it can be accepted. Roberts cites three sources of evidence in support of the idea that occupational choice is not the determenant of career behaviour and then proposes an alternative theory. Firstly, according to a survey, Roberts found that occupational mobility was not anticipated by the vast majority of his sample. Secondly, Roberts argues that few school leavers are seriously dissatisfied with their jobs yet many of them fail to enter their chosen jobs. Thirdly, it has been established in many studies that the ambitions of British school leavers are realistically modest, so much so that Roberts is led to suggest that the ambitions elicited from school leavers by researchers are not their true aspiration. Perhaps school leavers make a real effort to adopt realistic choices setting their real choices to one side in the knowledge that they are unlikely to realise them. Roberts states his alternative theory in the following terms.

> "The alternative theory that I am proposing asserts that the momentum and direction of school leavers' careers are derived from the way in which their job opportunities become cumulatively structured and young people are placed in varying degrees of social proximity, with different ease of

access to different types of employment. The ambitions of school leavers adapt to the direction their careers take, and are not major determinants of the occupations that young people enter".

(Roberts, 1968)

The article by Chester (1968) is based on the paper by Keil et al. (1966) and tidies up the latters' classification so that a framework is produced that enables a wider range of data on youth, education, and work to be organised in the hope of avoiding further fragmentation in this field. The paper by Keil et al. is also the starting point of a paper by Ashton who also attempts a conceptual framework by drawing on published evidence in the field and finding from a large project with which he was associated (Ashton 1973). Ashton was curious as to why most research findings indicated that the transition from school to work was experienced by the majority of school leavers as a smooth process when, it might be expected to contain shock experiences Ahston was impressed by attempts to analyse the process from the perspective of young people themselves (Haystead, 1971) although recognised that this perspective does not help us to understand how the socialisation process gives rise to different perceptions of the meaning of work among different groups of young people. Ashton identifies two 'channels' through which young people move from school to work, one leading to a working class career, the other leading to career less occupations. He argues that the children moving through these two different channels form different relationships with other people, face different problems of adjustment, and form different frames of reference

which he illustrates by reference to case study material. Ashton suggests that social inheritance, identification with and integration into schools, and the differential treatment of pupils by schools all contribute to an allocation process in which certain groups of pupils are denied access to the educational facilities that would enable them to procede to a middle class career. Whether or not pupils in these groups pursue working class careers or career less occupations depends on the acquisition of a special kind of self-image and orientation to work and work itself confirms the image they have of themselves.

The main contributors to a British theoretical tradition in the area of vocational choice are reviewed above and most of the papers reviewed have been usefully collected together by Williams (1974) and can now be accessed in one volume. The contemporary debate arising out of many of the issues raised in this section bears directly on the research described in the present study. How is discussed in the next section.

Chapter Summary

Chapter Two is concerned with the accumulated academic work already carried out within the area of the present study, the transition from school to work. This literature is reviewed within a three section framework. The first deals with literature relating to relevant political, economic, occupational, educational and vocational structures. The second deals with studies of young peoples interests, aspirations, attitudes towards work, and occupational choices. The third section deals with the main prevailing theories and approaches to the subject of occupational choice.

A number of important concepts and theories arecritically examined, for instance the idea that life chances are determined in the market place, the twin ideas of socialisation and anticipatory socialisation, the idea that subjective meanings are more determining than the impact of social and economic structures and the mainideas attaching to the subject of occupational choice. The main theories of occupational choice are examined carefully in detail.

The general impression arising from this review is that the literature pertaining to the transition from school to work lacks coherence and any persuasive unifying theoretical constructs or frameworks. The literature pertaining to occupational choice is even more confusing since it can be aruged that the main approaches do not provide us with a satisfactory explanation of the occupational choice process either singly or when taken together and some approaches are actually at variance with one another.

CHAPTER THREE

Matching People with Jobs: Theoretical and Methodological issues and problems

3. Introduction

The recent trend towards more active national manpower policies, planning, and interventions was raised in Chapter One together with some of the consequences of this trend at the interface between school and work which has become an area of greatly increased activity both at national and local levels, and at the level of individual institutions.

Such activity entails high costs in terms of both manpower and non-manpower resources, and the vast majority of these costs are met from public funds. To be effective, especially cost-effective, such activity needs to be planned in relation to broad aims by defining clear objectives in operational terms. The activity entails outcomes and there is also a need for a mechanism to ensure that the outcomes are preferred outcomes consistent with original objectives.

An objective is a statement of proposed change suggesting the need for a theoretical knowledge of action to be undertaken such that outcomes are predictable. The following example illustrates this point:

"what, therefore, is needed is a variety of opportunities and experiences from which the individual may benefit according to circumstances, abilities, and interests..... Each opportunity should relate to the realities of the word beyond full-time education. Each must be so designed and organised that it leads at the earliest possible moment to a satisfactory permanent job....."

(Manpower Services Commission, 1977)

This seemingly straightforward extract, which is taken from a government policy document relating to a new youth opportunities programme clearly entails three objectives,(1) that the programme of opportunities and experiences should match the range of circumstances, abilities, and interests, of the target population, (2) that the programme of opportunities should reflect the realities of the outside world, and (3) that the programme of opportunities and experiences should be designed and organised in a way that leads each participating young person to a permanent and satisfactory job. To begin with, these three objectives presuppose theoretical knowledge concerning how individual circumstances, abilities, and interests, can be known and measured and, further, how a match can be effected between such characteristics of individuals and the characteristics of occupational situations. The second objective presupposes an understanding of the ways in which the 'realities of the outside world' are defined, interpreted, and experienced by individuals without which the proposed opportunities could hardly claim to match, individual characteristics and supposedly consensus 'outside world' realities. The third objective suggests that the mechanism of occupational selection and choice is known and understood. How else could 'opportunities and experiences' be 'designed and organised in a way that leads each young person to a permanent

and satisfactory job without seriously conflicting with the prevailing ideology of occupational choice?

It is not only rational manpower planners and interventionists who need a theoretical basis for action. Those concerned with the recruitment and selection of labour in industry and commerce need a basis for explanation and prediction in matching people with jobs. Youth employment and vocational guidance experts similarly need to understand the process through which individuals make the transition from education to employment, as do many school teachers. Finally, each and every individual school leaver needs something with which to make sense of his or her own experience and which makes for orderliness and predictability in his or her life. The question inevitably arises as to where these desired theoretical formulations are to be found.

Chapter II contains a thorough review of British social science research and literature in the school to work field and it must be said that, although all the social science disciplines are represented and in spite of a number of noteworthy individual contributions the overall impression is one of a fragmentary and incoherent series of loosely related studies that have so far produced neither an integrative conceptual framework nor a theory that accounts behaviourally for young peoples' experience and actions. The purpose of this chapter is to critically examine the principal methodological problems in this area and, finally, to suggest a possible way forward by means of a new theoretical and methodological initiative.

3.1 A critical review of four categories of theories concerning occupational choice

Theories concerning the transition from school to work fall mainly into four categories - the 'old' and the 'new' sociologies of education, and differential and developmental psychology.

3.1.1 Functionalism

The 'old' sociology of education is dominated by the structural functionalist theories that prevailed in theoretical sociology throughout the 1950s and, to a lesser extent, the 1960s. Parsons (1959) and Merton (1968) are two of the classic sources on functionalist theory. From their perspective the increasing scale and differentiation of the education system corresponds closely to the more differentiated occupational structure resulting from the impact of technology. The characteristically British 'political arithmetic' tradition of sociological research developed over decades of empirical enquiry particularly into inequality of educational opportunity also emphasised the stratification effects of education and was concerned particularly with the effects of class on the likelihood of reaching various levels in the education process.

Structural functionalists see individual experience as shaped and influenced by external pressures deriving from social structures and 'systems'.

> "In societies with class systems the position of youth cannot be understood without reference to this system. I would go further than this and maintain that in no society can we understand the position of youth unless we first ask what structures the everyday lives of the society, what groups develop in relation to these structures and what articulates the relational aspects of these groups".
>
> (Allen S. 1968)

Class membership is assumed to confer certain attitudes, values, and interests that regulate the role and status of individuals in social, political, and economic spheres. It follows that social class has an important influence on attitudes to and expectations of work and home or jobs entered. Keil and colleagues, who must be credited with one of the earlier British frameworks for ordering the increasingly diverse school to work literature and for explaining the transition from school to work, suggest that class is one of many formal and informal influences exerted on what they conceive of as a process of adjustment at the point of and after entering the world of work (Keil et al, 1966). Musgrave, prompted by Keil, interprets and labels this process as 'socialisation' which then becomes 'the conceptual focus for developing a theory of occupational choice' (Musgrave, 1967).

> "Such a theory should cover the whole process of first choice of occupation and take account of influences operating on any individual from birth onwards"
>
> (Musgrave 1967)

Musgrave's theory, which he describes as a first approach to a socio-logical theory of occupational choice, is thus chiefly taken up with postulates of various different kinds of socialisation, economic, anticipatory, pre-work, socialisation into the job etc. in which socialisation is seen as a process of learning to take roles.

> "The pathway of roles available to the child, and hence his choice of occupation, is narrowed by the experience that he undergoes, more particularly at the hands of three main agents of socialisation, namely, the family, the school and the peer group. Gradually the child either comes to realise what possible roles are avialable to

him or is restricted by the socialisation process so that he adopts a self-concept of his own ability that narrows the range of roles from which he will choose".

(Musgrave, 1967).

Another structuralist theory also concerned with a narrowing of the range of options open to school leavers is Roberts' 'Opportunity Structure Model' which emphasises the stratification effects of the education process.

"Despite the widespread prevalence of the ideology of free occupational choice, different groups of school leavers do possess differential ease of access to the various types of employment. The occupational opportunities open to any school leaver are structured by a number of factors, the most important of which is that the individual's educational attainments and his freedom of choice are strictly limited. The type of secondary school an individual attended and his achievements within the school govern the range of occupations he is able to enter".

(Roberts, 1968)

Roberts views type of school and educational qualifications not so much as rigid determinants of jobs but as presenting different groups of school leavers with different opportunity structures and placing them in varying degrees of 'social proximity' to different kinds of occupations. Keil, Musgrave, and Roberts are agreed that the family, the school, and the peer group play a very important part in giving children knowledge of the values and behaviour of occupational roles although they differ with

regard to the emphasis accorded to various aspects of this socialisation process. Keil emphasises the need for a formulation of the process that allows for the incorporation of a wide range of 'factors' that have been found 'significant' in research already carried out. Musgrave is more concerned to locate the issues within a 'sound' sociological framework and to achieve a deeper theoretical understanding of the process of socialisation. Roberts on the other hand emphasises highly stratified opportunity structure, the function of the education system in adapting the work orientations of school leavers and placing them in varying degrees of proximity to different occupational levels by means of examination credentials, and the unreality of occupational choice.

Keil, Musgrave, and Roberts represent the 'old' sociology in so far as they seem to be concerned with a macro analysis of stable, differentiated, and specialised institutions, and a corresponding organisation of categories of persons, positions, and roles. This kind of functionalist analysis is now in some disrepute owing to its exaggeration of the importance of some ideas, for example the influence of technology or the pervasiveness of consensus and stability, and neglect of others, for example the importance of different ideologies, of conflict, and of change. Further objections are that functionalist analysis attempts to account for process, often by suggesting the occurence of a number of 'stages', although the manner of articulation of one 'stage' with another is seldom made clear, but relatively ignores content. There is no doubt as to the usefulness of the attention given by functionalists to the selection functions of educational institutions, and individual action experience does seem to be constrained by social systems and institutions or by other individuals. However the functionalist position with its emphasis on socialisation and the learning of roles does not adequately account for the ways in which pressures and

influences supposedly brought to bear on individuals in order to regulate the behaviour in the interests of society, are experienced, interpreted, and given meaning. Certain psychosocial processes must necessarily be invoked to account behaviourally for the processes of socialisation and role taking but suggestions as to what these are and how they operate are conspicuously missing from the functionalist analysis.

3.1.2. The'New' Sociology

There is an alternative view:

> "Society may be seen as populated by living actors and its institutions regarded as dramatic conventions depending on the co-operation of the actors in maintaining a definition of the situation".
>
> (Silverman, 1970).

From this viewpoint sociology is more concerned with understanding action than with observing behaviour. Here, action can only be understood in terms of the meanings which those concerned give to their actions and the actions of others and, indeed, in terms of the way in which the everyday world is given socially constructed and reconstructed meaning (Berger/and Luckman, 1966). The deterministic consensus outside world realities adopted by the functionalists in order to explain human behaviour are held to be reified social constructs used by particular observers of humanity. Neither is our behaviour completely determined by role expectations. Firstly, there is an element of choice in which expectations we regard as legitimate and which among several legitimate expectations we choose to attempt to meet. Secondly, we are at the same time bringing our own biography into the social situation in which role expectations are offered and there is the possibility of influence in this situation and hence over those offering role expectations. The learning of role appears from this standpoint to be the product of interactions with others rather than learned from others and

it has also been suggested that individuals can become highly skilled in the management of themselves in social situations and in fact bring various roles they may wish to play and the images presented of themselves substantially under their own control (Goffman, 1959).

The change in emphasis from macrosociological to microsociological analyses and the rejection of positivism and normative sociology especially in the United States during the late 1960s and throughout the 1970s was matched in the United Kingdom by a contemporary concern for the meaning and content of human experience and behaviour from the position of the individual actor which found expression in the form of communication codes (Bernstein, 1973) a more interpretive view of the socialisation process (Gorbutt, 1972), and a new concern with the sociology of knowledge itself (Young, 1971). These British sociologists, mostly connected with the London Institute of Education, were aiming at nothing less than the birth of a "new" sociology of education. According to Karabel and Halsey...

> "This is a claim worthy of serious attention------ Emerging within a discipline that despite impressive achievements had seemingly lost its forward momentum, the challenge raised by the interpretive school has infused new life into the sociology of education by pointing not only to crucial theoretical problems but also to new areas of research".
>
> (Karabel & Halsey, 1977)

These developments towards a 'new' sociology have their counterparts in studies of the transition from school to work. Haystead for example notes that Keil and Musgrave gave little attention to how their ideas influenced the job choice process itself and, that the process of first job choice had been generally neglected. In an attempt to

offer an alternative to what she called 'variable analysis' Haystead borrows the concept of 'awareness contexts' from Glaser and Strauss (Glaser & Strauss 1964) which she finds both practically and theoretically useful in analysing the 'definition of situations carried out by acting individuals because they can be related to different processes of choice' (Haystead, 1971). Haystead suggests possible awareness contexts, open, closed, and partial, and argues that it is just as important to account satisfactorily for the decision of individuals that alter the course of their own lives as it is to account for the decision of others that affect these individuals.

> "Any explanation of how a particular individual comes to enter job X must first of all consider whether the individual sees himself as being faced by competing alternatives requiring a choice between them --- the process of choice must be analysed from the persepctive of the individual constructions of reality".
>
> (Haystead, 1971).

Ashton, puzzled by his observation that young people experience the transition from school to work as a relatively shock-free and smooth process, was impressed by Haystead's arguments, which he termed 'this experiential perspective', but doubts that this perspective can help us to understand how the socialisation process within middle class and working class groups differs and gives rise to different perceptions of work. Ashton then examines two groups of young people grouped according to what he terms 'configurations' of structural factors e.g. class, type of school, type of occupation, and explores the way in which such configurations influence the development of different 'frames of reference' by means of which young people become committed to different types of work. Ashton maintains that the 'societal' (structural) and 'experiential' perspectives are 'different

yet complimentary' in accounting for the ways in which different configurations of young people are presented with different problems and opportunities, as well as different frames of reference that enable them to develop self-images and work orientations such that they can adjust to their different problems and opportunities without undue difficulty (Ashton, 1973).

Willis emphasised cultural factors as determinants of occupational choice and the experiential perspective rather than institutional viewpoints as most helpful in understanding the transition from school to work.

> "Their culture denies that knowledge is in any sense a meaningful 'equivalent' for the generality of working class kids. ..... It 'knows' better than the new vocational guidance what is the real state of the job market".
>
> (Willis, 1975).

Willis argues that the counter-school culture includes a cost-benefit opportunity costed analysis of the conformity and obedience that schools seek, its own assessment of the quality of available work, and a rejection of the possible carrot of upward social mobility. Willis finds a "deep-seated sceptimism about the value of qualification", an 'objectively' accurate picture of most work as intrinsically meaningless, and a pervasive suspicion of and anxiety about upward mobility which is in any case seen as remote and hence meaningless.

> "For the class as a class, the academic and occupational gradient measures not abilities but simply its own immovable repression. The working class is the bottom half of this gradient no matter how its atoms move. The wisdom of movement up the gradient as an

individual is replaced by the stupidity of movement as a member of a class".

(Willis, 1975).

The thesis that working class young people reject the dominant ideology of schools and define their situation in terms that give meaning to their own experience and position allows for a totally different interpretation of the functionalist position that schools are a sociotechnical stratification mechanism for society. According to this position schools channel groups into the appropriate levels of the opportunity structure. According to the new thesis working class youngsters arrive at their place in the opportunity structure because of their refusal to collude in their own educational and sociotechnical exclusion and suppression. Willis freely acknowledges that the 'cultural explanation' is a 'huge tautology' and gives no explanation how these attitudes are generated.

Birkstead argues against seeing pupils as 'unwilling carriers of a cultural load' or as 'pawns of teachers' and instead sees their behaviour as

"stemming from choices and strategies appropriately adapted to the actor's view of themselves in their social environment".

(Birkstead, 1976).

Birkstead's participant observation study found that work was not identified with school by the boys in his sample who saw the purpose of school as one of getting exams necessary for certain jobs. For them, the usefulness of school is strictly related to future occupational plans and those youngsters aiming at jobs not requiring exams found school useless.

Being school failures is quite irrelevant to them and school achievement or failure in this context looks less of a consequence of schooling and more like a deliberate strategy chosen by pupils in advance in the light of their occupational plans and their perception of the means of achieving them.

3.1.3 Differential Psychology

Differential psychology accounts for a large number of studies in the school to work field and has been one of the main contributors to an emerging occupational psychology. Many such studies were reviewed in chapter two. They were mostly concerned with one or more of aptitudes, interests, expectations, aspirations, attitudes, personality, and values (for example Freeston, 1939; Veness, 1962; Butcher, 1968). The idea that individuals differ in important ways does not require exceptional insight and differential, or trait, psychology has been concerned with making comparisons between individuals as precise as possible. Measuring instruments of all kinds have been developed to enable those concerned with matching persons to work roles to help individuals discover relative strengths and weaknesses, thus affording them a more enlightened and scientific basis for making occupational choices. Vocational guidance and job choice personnel have constructed profiles of jobs, of particularly successful encumbents of jobs, interest inventories, and preference tables, in the belief that a matching operation between job and personal characteristics would, given a sufficient level of correspondence, provide a safe guide in making an occupational choice. However, each individual has a unique constellation of attributes and abilities and the methodology of constructing appropriate and reliable measuring instruments is often extremely suspect. The stability of some of the characteristics for which measurements have been attempted may be open to doubt and, in any case, most people could probably cope with a range of possible occupational roles. The methods and achievements of differential psychology are consequently of limited usefulness in matching people to jobs and have yet to produce a conceptual scheme that accounts for

the transition from school to work in terms of individual differences. However the prevailing philosophy of most schools, especially in relation to the curriculum and to choice of subject, is that young people are led to their careers via their abilities and interests.

3.1.4 Developmental Psychology

Developmental psychology, on the other hand, has provided the most influential and widely used conceptual framework to account for the transition from school to work. The work of Ginzberg and associates is sharply critical of the three main approaches to occupational choice that it recognised, accident theory, psychodynamic theory, and theories arising from differential psychology, and set about developing a general theory of occupational choice that accounted for the interaction of the main internal and external factors in the decision-making of an individual. The researchers interviewed a main sample of 64 young people at eight different stages in the education process. This group was drawn from comfortable middle class middle income families and in order to examine individuals whose choices were more restricted the research team sampled a further 17 boys of lower socio-economic status making a total sample of 91. The theoretical conclusions of the study were as follows.

> "First, occupational choice is a process that takes place over a minimum of six or seven years, and more typically, over ten years or more. Second, since each decision during adolescence is related to one's experiences up to that point, and in turn has an influence on the future, the process of decision-making is basically irreversible. Finally, since occupational choice involves the balancing of a series of subjective elements with the opportunities and limitations of reality the crystallisation of occupational choice inevitably has the quality of a compromise"
>
> (Ginzberg, 1951)

More than 25 years after its inception, Roberts found that:

"the idiom of the development theories had become a conventional wisdom amongst the (careers) professionals"

(Roberts, 1977).

There are many possible reasons why this was so. For example the advent of the developmental theories of vocational choice was certainly timely in that it not only lent plausibility and credibility to what guidance professionals were already doing but enabled them to substantially expand their operations. Guidance was now seen not as a once-for-all activity but as a progressive exercise taking place over a period of years. It is doubtful whether the rapid development and extension of careers guidance work by local education authorities and by schools could have taken place were it not for the popular justification of this type of activity that the Ginzberg studies provided. The demand for bigger and better guidance facilities had been felt for some time, Ginzberg provided a theoretical justification for the and hence policy and decision makers could feel happier about planning and financing the necessary expansion.

Far from endorsing Ginzberg's approach Roberts had himself found it unsatisfactory in his own study reviewed earlier in this chapter (Roberts, 1968) as a result of which he put forward his own alternative 'opportunity structure' model. Roberts reservations were based on his unsuccessful experiment to test hypotheses drawn from Ginzberg's theory on British school leavers. Musgrave also found Ginzberg's "pioneering work" missing 'much of sociological relevance' (Musgrave, 1967). This is perhaps to be expected from sociologists but it is interesting to encounter another american psychologist who found limitations in Ginzberg's theory.

Super found that Ginzberg had not taken adequate account of previous work, including the predictive value of interest inventories, that Ginzberg's definition of choice did not allow for the fact that choice meant different things at different age levels, and that Ginzberg finally did not account for the way in which the compromise between self and reality is effected, which Super maintained was the crux of the occupational choice problem (Super, 1953). Super then develops his own theory based on the formation, translation, and implementation of a self-concept.

> "In expressing a vocational preference, a person puts into occupational terminology his idea of the person he is; ... in entering an occupation he seeks to implement a concept of himself; .... in getting established in an occupation he achieves self-actualisation. The occupation thus makes possible the playing of a role appropriate to the self-concept".
>
> (Super, 1963).

It is not possible here to do justice to Super's extensive and original work on occupational choice over the years which is clearly the second major contribution to the understanding of this process within developmental psychology. However, as in all the theories presented this far, one is on the whole stimulated and engaged by the analysis but, in the end left wondering how it is all done. Super gives a quasi sociological account of how the self concept evolves and becomes differentiated through imaginative role playing by association, imitation, and identification in play and in conjunction with adults. Super sees these as 'reality—testing' experiences that strengthen or modify self concepts which are finally translated into occupational terms. Moving into a job apparently implements or actualises the self-concept even if the self concept is negative and unfavourable. Super suggests that the self can be an object of a self enquiry/exploratory process and that it develops and changes. How we become

aware of our self concepts and of their changing nature and development is, unfortunately, not stated.

General criticisms can be levelled against the developmental theories. Firstly, how far is a developmental theory of an individual coming to terms with reality consistent with the self-evident and rapid social, technological and economic change. Secondly, the developmental theories do not explain the process of choosing first jobs which, whatever may have led up to the choices, is a real choice, often in the face of uncertainty, from among several alternatives perhaps at the same skill level but offering real choices to the chooser. Thirdly, the developmental theories do not attempt to account for what is sometimes termed the societal perspective and the concerns of the 'old' sociology. Clearly, factors extraneous to individuals and to the choice process not only influence individual's perception of the outside world and hence their choice, but also have a very real effect on their opportunities and prospects. It has even been argued that the characteristics of some school leavers far from determining their occupational choices in fact adapt to the direction their careers take (Roberts, 1968). Such people do not choose their jobs they become their jobs owing to their capacities for adaptability and the desire to reduce 'dissonance' caused by the differences between aspiration and actual jobs during early experience of work.

> "In this way 'career' creates a canopy of meaning (Berger, 1967) a framework that gives sense to life. The label selected, anticipatory socialiation removes cognitive dissonance by preparing the self to adjust to the new situation. Far from the choice being the implementation of a self concept, the self is created by the choice. The direction of causality suggested by the progessive careers educationalists is reversed".
>
> (Roberts, 1980).

This argument casts some doubt on Super's idea of the implementation of a work personality. In Ginzberg's case the current relevance of some of the assumptions upon which the study was based is open to question, for example the assumption that girls approach their occupational choice within a framework of a primary desire to get married and to have children seems questionable. Of interest in this regard is the fact that Ginzberg has shifted his position in important ways at least twice since the original development of his theory in 1951. At first Ginzberg saw the process of occupational choice coming to a permanent closure when a person enters his or her first job. In 1972 he described occupational choice as a 'life long process' with individuals striving for the best possible fit between goals and the realities of the world of work (Ginzberg, 1972). In 1975 he undertook a further review of his 1951 theory.

> "These efforts have helped me to understand that the model used in the original investigation..... could not support the sub-title 'An Approach to a General Theory'.... The original formulation was based on a developmental approach; my reformulated theory stands on sociopsychological formulations".
>
> (Ginzberg, 1975).

Ginzberg had by this time reappraised the occupational choices and career development of women, reversed the irreversibility component of the original theory, reconsidered the compromise component, and showed greater sensitivity to what he terms 'reality factors' e.g. income, sex, and race. He remained convinced however that the individual is at the centre of the occupational decision-making process and that everyone has some options.

Ginzbergs reaffirmation of the important place of the individual in the school to work process reminds us that we still do not have a theory of any real practical value in accounting behaviourally for occupational choice in the individual case. Ginzberg himself makes the point:

> "... the results from this method have relevance for the group as a whole but not necessarily for any individual within the group".
>
> (Ginzberg, 1951, page 198).

Throughout the vast majority of the transition from school to work literature and research reviewed here in terms of four distinct categories of approach there runs either an attempt or a claim to understand certain categories of people in general. Even having regard to the acknowledged achievements of these approaches the fact that we still cannot understand the behaviour of one single person in particular casts doubt on such claims and also on whether it is worthwhile to continue along the lines suggested by the approaches examined here. It may indeed be more fruitful to first attempt to satisfactorily account for the behaviour of individuals and from here to look for common patterns of behaviour that might be found to account for the behaviour of groups. There has for some time been an urgent need for a new initiative aimed at formulating a behavioural theory of occupational choice that meets the practical needs of all those involved in the area and that is consistent with the main theoretical findings of previous work.

> "In spite of the social and personal importance of matching persons to roles, and in spite of a multiplicity of institutions and procedures designed to improve such matching, the process is a rough and ready one, involving misfits, readjustments, errors and

miscalculations by employers, employees and advisers. Costs are probably heavy in terms both of economic output and personal regret".

(Sofer, 1974).

Since the above passage was written the matter has become more urgent for the reasons outlined earlier in Chapter I. It is perhaps not much of an exaggeration to suggest that the lack of a satisfactory behavioural theory of occupational choice is the most serious impediment to the beneficial and efficient use of human resources and, to the implementation of national manpower policies.

3.2 An analysis of the strengths and limitations of previous methodological approaches to occupational choice

The outcomes, or results, of all social science research studies are in large part artefacts of the methodology chosen and employed. The success of a novel attempt to account for occupational choice from the standpoint of the individual will similarly depend on the appropriateness and effectiveness of the chosen methodology. The aim of this study is more than simply to account for the occupational choice and behaviour of a single individual but to account for this in a way which also accounts for those other aspects of the transition from school to work process that have been addressed by previous researchers or, at least, suggests ways in which other aspects may be accounted for, for example the concept of socialisation. The conclusion of the previous section in which four main categories of previous research were reviewed lead to uncertainty about the appropriateness of the methods employed earlier in the search for a new behavioural theory of occupational choice and the transition from school to work. However, before dissmissing them as inappropriate it is worth examining some of their strengths and limitations.

3.2.1 Methodological Empiricism

The pre-eminent approach of the 'old' sociology has been methodological empiricism typified in the work of Douglas (1964) and Blau and Duncan (1967) described in the previous chapter. These and similar studies were usually conceived in relation to the functionalist or normative paradigm but were often only loosely related to theory, or, belonged to an atheoretical correlation tradition. The method is highly technical and numerical and three main reasons have been suggested for its ascendancy (Karabel and Halsey, 1975).

1. It is well adapted to the interests of administrators and 'political arithmeticians' because it concentrates on means and leaves ends in the hands of others.

2. The relatively poor status subjects of education and sociology needed 'rigorous' quantifiable methods for their own legitimation.

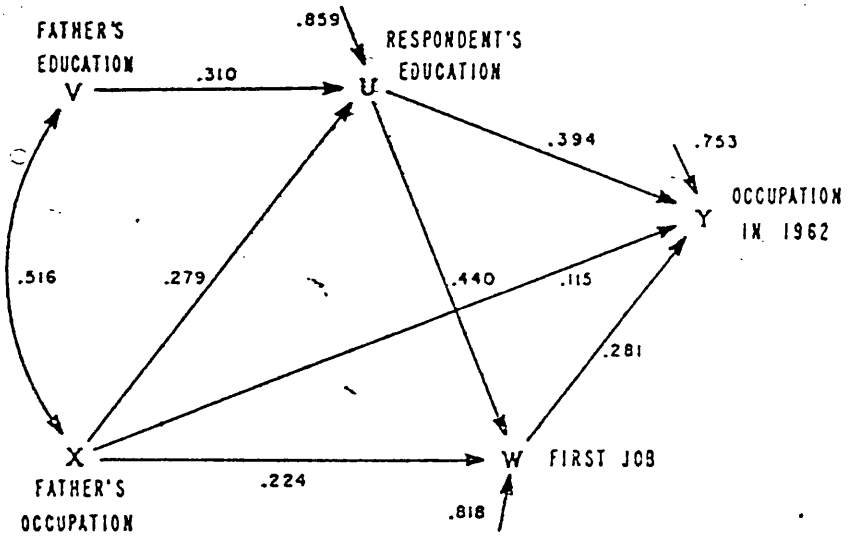
3. It provided a standardised approach for the expansion of sociological and educational research.

None of these reasons have much to do with the performance of the method itself with regard to the collection and interpretation of data and its explanatory and predictive usefulness. A number of objections may be raised. Firstly although lip service is usually played to the concept of correlation as a measure of association and relation between two or more phenomena, there is often a strong implication of causation which is unjustified. This is true of the Blau Duncan study already described in chapter three in which a path analysis model is advanced to illustrate causative relationships between, for example, father's and son's occupation.

"A basic assumption in our interpretation of regression statistics, though not in the calculation as such, has to do with the causal or temporal ordering of these variables"

(Blau & Duncan, 1967,)

There are many other problems with this study apart from the questionable interpretation of path coefficients as causally related. There is, for example, the problem of a large amount of unexplained variance in the model as indicated by the lines coming into the model without origins. This high level of unexplained variance accounts for all the other influences on the variable including errors of measurement. Yet another problem is that the input variables only account for between 26% and 42% of the variance in the dependent variables.



Also the importance of differences between different levels of correlation between variables is discussed without the significance of the differences having been tested, and although the authors claim to have obtained results consistent with their original theoretical expectations others have found that "A careful look at the data, however, brings this conclusion seriously into question" (Karabel-Halsey, 1975). Finally then we are left with an elaborate study which Karabel & Halsey describe as:

"One of the most influential studies carried out in the methodological empiricist tradition"

in which the method gives rise to the most serious problems of measurement and interpretation and about which there is substantial disagreement concerning the conclusions. Three further general criticisms of conventional empirical research are that it tends to neglect and under value those aspects of the enquiry process that do not lend themselves to quantification and, a related objection, tends to equate and define scientific method in terms of quantitative method. The third criticism concerns the basic assumption of the method within a philosophy of science about the nature of the 'real' world and our relationship to it. Postulates of variables and the testing of hypothesised relationships between them can only be meaningful if such variables are held to exist, relationships between variables are governed by laws that are held to exist, and if it is possible to know of their existence and to ascertain their nature. Such ideas cannot be shown self-evidently to be true and have been the subject of debate at the highest level in the philosophy of science. The question that arises here is the appropriateness of the approach and methods of empirical sociology for the purposes of this study.

3.2.2 The Methods of the 'New' Sociology

The 'new' sociologists on the other hand have made their own powerful assault on the assumption and methods of methodological empiricism. The attitudes of the 'new' sociologists range from a deep-seated suspicion of quantitative methods to a total dismissal of attempts to measure phenomena such as educational performance or occupational aspirations. A new, sub-species of social scientists known variously as ethnomethodologists, phenomenologists, or symbolic interactionists, gradually materialised (Cicourel, 1964; Blumer, 1969; Garfinkel, 1967; Goffman, 1961) in America

while, at the same time, a new microsociological approach focussing on the content of education emerged in the London Institute of Education (Bernstein, 1961; Davies, 1969; Young, 1971; Gorbutt, 1972). No longer concerned with macrosociological functionalist ideas, such as the role of education in relation to other social institutions, the 'new' sociologists applied themselves to what was happening inside classrooms. The new sociologists reject functionalist and normative explanations of human behaviour in favour of concepts such as the "social construction of reality" (Berger and Luckman, 1967), the "definition of the situation" (Volkart, 1951) and the "negotiation" and "renegotiation" of meanings. The new research content and form of enquiry at the micro level required new methods and the 'new' sociologists employ a range of 'soft' methodologies known collectively as the 'interpretive paradigm'. These methods owe something to the ethologist and anthropologist - the preferred methods are observation techniques including unobtrusive, participant, semi-participant, and direct non-participant observation.

> "....it is my belief that any group of persons - prisoners, primitive pilots or patients - develop a life of their own that becomes meaningful, reasonable and normal once you get close to it, and that a good way to learn about any of these worlds is to submit oneself in the company of the members to the daily round of petty contingencies to which they are subject"
>
> (Goffman, 1961).

A critical discussion of observation methods of data collection is given by Cumberlidge who investigated the problems of getting "close" in some detail. Cumberlidge is doubtful about the "authenticity" of knowledge and understanding gained in this way and suggests that different methods of observation entail different costs and overheads for the researcher as well as probable different benefits.

> "Full participation, however, is clearly a resource-consuming business..... At the other end of the involvement scale lurks the unobtrusive observer..... He does not have the problem of overheads that befalls the full participant"
>
> (Cumberlidge, 1978).

Garfinkel finds that in this search for the variables that contribute to the stability of everyday life sociologists rarely examined "the socially standardised and standardising 'seen but unnoticed', expected background features of everyday scenes" (Garfinkel, 1964). Garfinkel goes on to add....

> "For these background expectancies to come into view one must either be a stranger to the 'life as usual' character of everyday scenes, or become estranged from them"
>
> (Garfinkel, 1964).

The idea that the 'old' sociologists have missed much of relevance in trying to understand the stable features of everyday life and the meanings held by individuals to make sense of their experience comes as a welcome alternative to the deterministic approach of the 'old' sociology with its reification of variables. These arguments and those

concerning problems of measurement, and analytical technique used by the 'old' sociologists have important consequences for any commonsense view of reality and for any future study concerned with the explanation of choices and behaviour in the transition from school to work. The extent to which methods and approaches drawn from the 'new' sociology are likely to be appropriate for such a study is, however, doubtful. The 'new' sociologists have been more successful in criticising the functionalist/normative paradigm than they have in offering a viable alternative form of social science. Typically their methods produce studies that are non-replicable, findings that are non-falsifiable, a kind of knowledge that is limited by an extreme relativism and far from building on previous work and achievement, the 'new' paradigm has been put forward in an adversarial relationship to the 'old'. Finally, for the purposes of a proposed new study, there are the obvious practical and resource difficulties of the full participation approach of Goffman and of the unobtrusive observer approach of Garfinkel. Only the compromise 'semi-participant' approach of Cumberlidge need be retained for further consideration.

3.2.3 Psychometry

The methods and approaches of differential psychology have not changed much in principle since the early experiments of one of the pioneers of this genre Galton in 1883. Typically, subjects are presented with carefully devised measuring instruments in which they are offered a group of items to which they can make a number of responses. The researcher then scores the responses and may undertake a complete analysis of the resulting data without further reference to the subject. But whereas the principles have changed little the purposes of measurement have become much more ambitious. There is a considerable difference between measuring sensory discrimination, which is what Galton was concerned with, and measuring something as complex as an attitude. The

construction of psychometric instruments for attitude measurements has become fairly standardised (Edwards, 1957), and generally involves utilisation of one of several well established techniques, for example those of Thurstone (1929), Likert (1932) and Guttman (1941). In each case a number of objections can be made. In the case of Thurstone and Likert there is the weakness that statements collected can only be assumed to refer to the dimension to be measured. In the case of Thurstone there is the extra weakness of the use of judges as supposedly objective criteria of measurement. In the case of Likert there is the problem of interpreting the numerical values and the claims of the scale to be an interval scale, and there is a doubt as to whether the answer scale intervals are equal ('strongly agree' to 'strongly disagree'). If the scale is in fact to be regarded as an ordinal scale the application of 't' tests to the most and least discriminatory items becomes questionable. There is also the regretable loss of information caused by the rejection of the items about which there is general agreement. In the case of the Guttman scale one of the main difficulties is finding enough monotonic (answer yes or no) questions that refer to the same dimension.

Gardner, in a critique of recent attitude research found a number of defective scales including:

(1) Scales which lack any discernible underlying theoretical construct.

(2) Scales in which various theoretical constructs are confounded together i.e. scales which attempt to reduce multidimensional attributes to single scores.

(3) Experimental treatments in which there is little discernible relationship between the experimental treatment applied and the scale used to measure its outcomes.

(Gardner, 1975).

problems concerning the selection and addition of items and sub scales and concerning the unidimensionality of scales and attitudes account for most of the technical deficiencies in attitude measurement methodology.

Measurement techniques employing factor analytic treatments may be regarded as equally problematic. The first step in factor analysis involves the calculation of the correlations between a set of relevant variables, usually product moment correlation coefficients. The second step is the extraction of the factors, a new set of variables, based on interrelationships in the data. These factors are assumed to be independent of each other and common to the original set of variables. After these 'common' factors have been extracted there is invariably a quantity of residual variation attributable to each of the original variables which become 'specific' factors. The end result is that the total number of 'common' and 'specific' factors exceeds the number of dimensions originally measured and includes new dimensions which were neither explicitly formulated nor included in the original specification of the study.

> "It becomes obvious when one thinks about it that variation recorded in terms of m coordinates cannot extend into more than m dimensions altogether and therefore that the assumptions of specific as well as common factors must be fallacious"
>
> (Slater, 1977).

In addition to the logical difficulties raised by factor analysis there are the difficulties of interpreting and labelling the inferred factors and of ensuring that they really do refer to 'real-life' phenomena. In spite of these problems some factors

isolated from a number of tests have been found to be of real psychological or even biological importance. Terms such as Verbal Comprehension, Word Fluency, Reasoning, Perceptual Speed, Spatial Visualisation, and Numerical Fluency have all been derived from or further developed using factorial studies and, after some disagreement over naming, these factors are now common currency among psychologists and are accepted as having important psychological meaning. In personality research, where factorial studies have similarly been extensively applied (Cattell, 1957; Eysenck, 1952; Guildford, 1959; Comrey, 1970), the factors known as Extraversion and Neuroticism have been found to have not only a psychological but also a biological basis in brain physiology.

Few attitude scales have been developed that are relevant to research into the transition from school to work although one or two scales concerned with attitudes to science and technology are of interest (Selmes, 1971; Page et al., 1979). The most recent was developed in response to concern regarding the apparent lack of awareness of industry and technology among children leaving school and their rejection of careers in industry because of the low esteem in which such careers are held. This scale includes four sub-scales, attitude to technology, attitude to an industrial career, attitude to technical training, and attitude to technology as a school subject, and yields four distinct attitude measures. The scale has been successfully used for comparisons between groups, in evaluating Schools Council Modular Courses in Technology, and for identifying schools with high scores as compared to regional norms. No doubt this scale is well suited to the purposes for which it is currently being used but no evidence has been presented that the scale has any

predictive utility with regard to future choice of, success in, or satisfaction with careers in industry. It is still open to question whether it is feasible to explain either subject choice at school or occupational choice in terms of the four sub scales used in this instrument. Factorial techniques on the other hand have been used extensively in the school to work field both in research and in guidance especially in America. A typical research application is described by Butcher (Butcher, 1968). Nearly 1200 children aged 13 years were given a number of tests of ability, interest, and personality. Additional data was collected including pupils ratings of school subjects, school marks, biographical measures and teachers estimates of advantage or deprivation. A total of 70 pupil, school, and home variables were submitted for analysis and 19 factors emerged of which 10 were 'clearly interpretable' ('the remaining nine appeared to be of relatively minor importance'). The 19 factors accounted between them for 63.3% of the total variance (It follows that the 10 clearly interpretable factors accounted for less than 63.3%). They were stability, scientific orientation, mechanical orientation, general attainment, introversion/extraversion, verbal reasoning, mathematical aptitude, literary interest, interest in social work, and aesthetic interest. The two main purposes of this research were to (a) condense from the mass of available information a single estimate of the suitability of each pupil for a career in Science taking into account both aptitude and interest at age 13, and (b) then to discover how far subject choice at later ages and scholastic performance correspond with the estimates of suitability. Butcher is satisfied that his research had accomplished its purpose (a) by producing two scientific factors, scientific orientation and mechanical orientation, a kind of pure and applied dimension. Butcher seems well aware of the inherent

difficulties in relating his suitability for science measures to actual subject and opportunity choices. The paper concludes:

> "It seems likely that the influence of parents and school may considerably affect actual subject choice and it will be interesting to see how such influences interact with traits as assessed by psychological tests".
>
> (Butcher, 1968).

At the time of writing Butcher's 'home' and 'school' data was still being analysed for publication in later papers but, unfortunately, it has not been possible to locate any accounts of how 'home' and 'school' influences ' interacted' with 'traits' among Butcher's sample and there is thus no evidence of the predictive value of the measure obtained.

The research just described raises the question of the usefulness of factorial techniques and especially of the multifactor test batteries that have been produced for use in guidance where the structure of mental abilities and human traits for which these techniques are so well suited is a subordinate issue to the educational and vocational significance of these abilities and traits for unique individuals in specific situations. Guidance personnel need to know above all what the results of batteries of tests indicate in terms of likely occupational choices, and in terms of the individual's prospects of success and satisfaction in a chosen field of study or employment. Every individual, no less than the guidance experts, requires this information in order to make his or her own decisions and such information

is not forthcoming from differential aptitude testing.

The General Aptitude Test Battery published in 1947 by the U.S. Employment Service is said to be suitable for counselling persons who are new entrants to the labour market. The battery consists of 12 tests, two using apparatus the rest pencil and paper, that provide measures of 9 factors that have been identified by factor analysis studies of over 50 tests that were in regular use over a period of time. The factors are intelligence, verbal aptitude, numerical aptitude, spatial aptitude, form perception, clerical perception, motor co-ordination, finger dexterity and manual dexterity. Raw scores are converted into standard aptitude scores by means of conversion tables. Twenty two occupational aptitude patterns have been established and each individual's aptitude profile is matched against the occupational aptitude patterns to determine the occupations that are suitable for the individual's aptitudes. The 22 patterns cover over 500 occupations but one of the fundamental weaknesses of these occupational aptitude profiles is that several occupations are brought together under one profile thus concealing differences in occupations which may be of importance or even of vital significance to some individuals. For example in the GATB engineers and physicians are in the same occupational aptitude profile as, in another, are tobacco -wrappers and turret-lathe operators. Similar tests developed in the U.K. are the Morrisby Differential Test Battery and the Connolly Test although they do not attempt to use occupational aptitude profiles as such but rather suggest a broadly based relationship between clusters of aptitudes and clusters of occupations.

Other psychometric techniques include instruments designed for the evaluation of objects with reference to a criterion or to several

criteria. A method for the evaluation of several objects in relation to a single criterion is the technique of paired-comparisons. Here pairs of stimuli are presented to the respondent who is required to choose one member of the pair on the basis of some stated criterion. An interesting example of this technique is a study of school leavers' preferences among different working conditions which might be operative in their decisions in taking up jobs (Veness 1962) for example long holidays, a good canteen, a sitting down job, a country job etc. Paired comparisons can be used with individual subjects or for groups and the end result is a rank order indicating the way in which an individual or a group conceive of a rank order of objects in terms of a single criterion. The method looks promising as a possible method of measuring the perception of individuals and groups of the relative merits of different jobs by ranking them in relation to specific criteria or vice versa. For objects $\frac{n(n-1)}{2}$ pairs are possible and so the number of jobs or criteria would need to be kept small if the data are to be kept to manageable proportions. Such a procedure would produce a matrix of rankings with the jobs in the columns and the criteria in the rows or vice versa and would require sophisticated techniques of analysis.

The evaluation of an object in relation to several criteria is more often associated with the semantic differential. This can take several forms. In its original usage a respondent rates an object on a scale in terms of several opposing adjectives or dimensions, for example good/bad or hot/cold, presented to him or her in the form of a prepared sheet. The simplest method of interpretation is for the results to be presented in the form of a profile, sometimes in which the pairs measured in common are grouped together in order to make them

more visually effective. Osgood subjected his pairs of opposites to factor analysis and found that all the pairs he used measured chiefly three dimensions which he called evaluation, potency, and activity. There is no standard procedure for the selection of pairs and the method readily lends itself to comparative use. Thus, for example, it would be feasible to explore the occupational choices of individuals and groups by asking them to rate a number of occupations in terms of a number of relevant pairs. Again, a matrix of scores would be produced with the jobs in the columns and the pairs in the rows and, again, sophisticated techniques of numerical analysis would be necessary to extract the maximum information from the data.

3.2.4 The Methods of Developmental Psychology

The methods of developmental psychology include the collection of traditional trait and factor data on subjects as well as interview techniques and projective rather than objective tests. The more objective psychometric techniques have already been fully examined and this section now concludes with a brief consideration of interview methods and of projective techniques which are relatively infrequently used in school to work studies. Ginzberg, for example, relied substantially on interviews for the collection of data for his studies (Ginzberg). Seemingly straight forward the interview method is fraught with difficulties although it is probably the most widely used research method. Many practical difficulties are self-evident. Interviewing is labour intensive and time-consuming and there are sampling problems. The contact time between the researcher and interviewee is typically fairly short and yet a large quantity of information must be elicited whilst at the same time preserving the illusion of normal social intercourse. If the interview is to be formal there are problems concerning the

formulation of the questions. If the interview is to be informal there are problems concerning the focus of the dialogue and of getting through the business. At the end of it all there are problems of interpreting and aggregating large quantites of data. At a different but equally if not more important level there is the problem that the information elicited may be biased by the subjects' expectations or interpretation of what the interviewer is trying to accomplish. There is the additional question of the extent to which the interviewer is not merely eliciting information but also generating it. Thus, although the interview seems well suited to the discovery of subjective attitudes, desires, feelings, and motives there is the disturbing possibility that the interview situation changes both the environment and behaviour of respondents in such a way that little unbiased data is obtainable. Another approach to the discovery of attitudes, desires, feelings, and personality is to be found in a number of projective tests of which the best known are probably the Rorschach and Thematic Apperception Test. The important feature of these tests is that they do not depend on subjects' responses to fixed a priori stimuli. In the case of the Rorschach test the stimuli consist simply of unstructured ink blots and the subject tells a story about what he sees and in so doing projects his personality. The Thematic Apperception Test is similar but here the stimuli are in the form of pictures. Sometimes a subject may be asked to write a story on a particular subject and a psychologist interprets the resulting projections and draws conclusions about the subjects personality, interests, or aspirations. This method was used by Freeston to explore the vocational interests of Elementary school children (Freeston, 1939) a study mentioned in Chapter 3.

It was concluded at the end of section 3.1 after a careful review of the four main theoretical approaches to the problem of occupational choice that, at the present time, no satisfactory operational theory of occupational choice has yet been propounded. The foregoing critical review of the methodological approaches employed within the four main theoretical orientations suggests that the methodologies employed previously may not be well suited to a new theoretical and empirical initiative with the objectives first of predicting and explaining occupational choice in the individual case and then of combining data from different subjects in order to explain the behaviour of groups without losing the basic characteristics of individual behaviour. The methods of the 'old' sociology may be ruled out as wholly inappropriate. The methods of the 'new' sociology must be discarded, with the possible exception of semi-participant observation, for logistical and economic reasons as well as because they do not lend themselves to precise measurement and analysis. The methods of psychometry may be set aside for technical, logical, and philosophical reasons. The technical difficulties of attitude scale construction and the logical and interpretive problems of factor analysis were discussed in detail. In addition psychometric methods are unsuitable for a study of individual behaviour because they are primarily concerned with recording variation between individuals and not with exploring the individual microcosm. Thus, only the remaining methods, the method of Paired Comparisons, the Semantic Differential, the Interview Method and the Projective Tests seem appropriate to the requirements of the new initative although the methods of Paired Comparisons and the Semantic Differential are usually associated with the exploration of group rather than individual psychology. A number of operational problems may be envisaged, including the selection of

of appropriate test items and the application of appropriate methods of analysis. In principle, however, instruments designed to explore individual evaluations of a number of items in terms of a number of dimensions are the most promising to have emerged from this critique of available research methods. The next section outlines relevant developments outside the four main theoretical and methodological areas of occupational choice studies in order to ascertain whether any theories and methodologies developed in other contexts can be usefully applied in the development of a new theory of occupational choice.

Chapter Summary

Chapter Three draws attention to the problem that most of the issues and activities discussed in Chapters One to be effective in terms of costs and outcomes, require a sound theoretical basis for planning and action. It is then argued that the theoretical attempts at explaining the transition from school to work and the process by which young people choose their occupations discussed in Chapter Two fall some distance short of an adequate theory.

In Section 1 four categories of theories are then identified and discussed in depth. They are the functionalism of the old sociology, the action frame of reference of the new sociology, theories underlying the psychology of individual differences and those underlying developmental psychology.

In Section 2 it is suggested that the outcomes of previous theoretical initiatives were, in part, artefacts of the methodology employed and that they fail on the whole to account adequately for the behaviour of a single individual. The four categories of theories proposed in Section 1 are then subjected to close methodological criticism and found wanting.

This chapter concludes with the suggestions that few of the methods employed so far in elucidating the problem of occupational choice seem appropriate to the task since they fail to explain adequately the occupational choice behaviour of a single individual. This conclusion leads easily to the further conclusion that a new theoretical initiative in this area is likely to need to draw on theoretical constructs and formulations from outside the established area of transition from school to work and occupational choice studies.

CHAPTER FOUR

Theoretical, Methodological and Technical Foundations of the Present Study

Introduction

The urgent need for a new approach to the problem of occupational choice has been argued in earlier chapters and a sense of unease, even of dissatisfaction, has been felt concerning the appropriateness of earlier approaches to this subject reviewed in the previous chapter and it follows that this study is not one that can be seen to continue in a direction established by previous related studies, either by building on particular explicit findings or by beginning where an earlier study or groups of studies has left off. On the contrary, nothing less than a wholly different approach is called for, an approach in which both the theoretical position and methodology employed are entirely appropriate to the subject of study. It seems to be better from the point of view of research design for an explicit theory to be clearly stated in advance rather than to employ an implicit theory which may be unstated, or even denied. The review and discussion in Chapter Three leads to the conclusions that a theoretical foundation for the new approach is unlikely to be found in earlier work and, with regard to the search for an appropriate methodology, only one or two techniques

were found to be potentially useful e.g. the semantic differential and the technique of paired comparisons. Underlying these conclusions has been an important recurring theme which must now go forward as a methodological principle of the new approach namely, that any explanation of social behaviour must adequately explain the individual case and that techniques must be found by means of which observations of individual cases may be summed so leading to explanations of group behaviour without distortion of individual behaviour and with due regard to individual behavioural differences. This principle, which is the corner stone of the present study has

been well supported elsewhere. Somewhat surprisingly one of the principal architects of grand design psychometrics has stated at the end of a major survey of research into reminisence, motivation, and personality

> "The first point that clearly emerged from this survey was that early students... used experimental and statistical techniques that were applicable to the study of group behaviour, but not properly applicable to the study of individual behaviour. From our definition of the appropriate subject matter of psychology this was an improper methodology".
>
> (Eysenck, H. & Frith, C. 1977)

Eysenck goes on to discuss the 'proper' methods for studying individual behaviour, the problems of measurement error, and laments the relative lack of appropriate techniques for combining data from different subjects without losing the properties of individual behaviour. Support for the principle advanced above is also to be found in certain areas of sociology.

> "The main questions we address are clearly and intentionally sociological. We are not primarily interested in personal idiosyncracy nor directly in the psychological processes of perception.... But we do hold to the methodological principle that aggregation should follow inspection of individual differences, and not precede it. Secondly, we believe that it is a necessity, and not just a luxury, to pay attention to the cognitive basis of social action, if inferences are to be made about individual behaviour".
>
> (Coxon Jones, 1978)

It is now perhaps becoming self-evident that although the present study, concerned as it is with occupational choice at the end of compulsory schooling and the entry into working life, falls fairly and squarely into the area of transition from school to work studies the main root ideas contributing to the design of the study have been drawn from elsewhere. The remaining sections of this chapter are concerned with making these root ideas explicit and with explaining their origins.

4.1 Aspects of Cognitive Mapping

The search for appropriate and acceptable theoretical and methodological foundations for the present study may be likened to the process of constructing a jig-saw puzzle. The metaphor is not quite straight forward since the number and variety of available jigsaw pieces can be seen to be drawn from several possible different puzzles. The problem is how to construct a new jigsaw puzzle, the final form of which is unknown at the outset, by drawing on a selection of pieces in which many pieces are obviously inappropriate and where those that may be appropriate are clearly able to contribute to more than one finished puzzle. Thus ChapterThree was largely an account of why certain pieces of a possible jigsaw were rejected as inappropriate and this section of Chapter 4 is an account of which pieces were finally selected, of how they fit together in a new and perhaps unexpected configuration, and of what the finished product, the new jigsaw puzzle, looks like.

Five pieces were finally selected to form the new jigsaw and they are drawn from clinical psychology, occupational cognitive psychology, occupational cognitive sociology, mathematical psychology and grid technique. When the five pieces are fitted together it

becomes obvious that the new five piece jigsaw represents the area of activity often called 'cognitive mapping'. The contribution made by each individual piece to the whole will first be described and thereafter the concept of cognitive mapping will be discussed.

4.1.1 In a passage which follows closely after that quoted earlier Eysenck writes of clinical psychology:

> "...it is in clinical psychology, normally considered the most theoretically and methodologically backward area of psychology, that the most advanced methods of analysis of data from single subjects are being developed..... unlike their colleagues in academic research they (clinical psychologists) can never fall into the trap of believing that psychology can be advanced by studying large groups of subjects using the statistical methods appropriate for such groups. For the clinical psychologist is confronted with the individual patient and it is the behaviour of this one person that he must understand".
>
> (Eysenck, H. & Frith, C. 1977)

Eysenck draws attention to the two important aspects of clinical psychology upon which the present study largely depends (a) the necessity for the clinical psychologist to understand his individual patient and (b) the advances in methods of analysing data from single subjects. The necessity for the psychologist to understand his patient led in 1955 to the presentation of a completely new theory of psychological functioning, entitled 'The Psychology of Personal Constructs' (Kelly, 1955). This theory attempts to explain human behaviour by viewing individuals as similar to scientists in

their attempts to predict and control their environments.

> "Kelly's fundamental postulate is that a man's behaviour is directed by the way in which he anticipates events. He does not simply let them push him around; he attempts to predict and control them. He develops his construct system to make sense of his environment and chart the course of his future behaviour.... Any alert person experiments with his constructs, adopting them tentatively and testing them at every opportunity. Each day's experience may confirm some parts of his construct system and call for revision or outright abandonment of others".
>
> (Slater, 1977)

Kelly states the philosophical assumptions underlying his theory explicitly and argues them at length. He calls his philosophical position 'Constructive Alternativism'. In order to observe an individual's personal constructs within his or her construct system Kelly devised an exploratory instrument known as the Role Construct Repertory Test more often called the Repertory Grid. By means of the Repertory Grid Kelly was able to focus on elements of the client's own realm of experience from which clinician and client could then elicit the relevant constructs. The client's view of himself and his environment is thereby revealed in the properties of his personal construct system which also account for his behaviour. A fuller account of what is meant by Constructive Alternativism, Personal Constructs, and Repertory Grid is given later in Section 4.2 and an account of advances in methods of analysing data from single subjects is also given.

4.1.2 The need to understand how occupations are perceived by individuals and groups has been felt for some considerable time. For example, early studies of social mobility were confronted with the problem of defining an ordered scale of occupations along which the movement of men and women could be plotted. Lay judgements about occupational groupings and prestige were therefore sought as a preliminary step in social mobility studies (Moser & Hall, 1954). The methodology of constructing consensus occupational prestige hierarchies has been problematic and has contained many technical shortcomings (Reiss, 1961). In particular the assumption of evaluative consensus has been challenged (Alexander, 1972) and interest has increasingly been directed towards the cognitive operations underlying occupational evaluation and preference formation. The idea that both evaluation and preference formation are a function of prior cognitive characteristics and dispositions suggests that occupational prestige hierarchies cannot yield reliable information concerning individual subjective perceptions, interpretations, and meanings concerning the status structure of the occupational world. On the contrary, from this point of view information concerning the way in which people construe and organise their constructions about the occupational world is a necessary pre-requisite for understanding what prestige hierarchies mean. Attempts to understand the cognitive operations and implicit theories held by individuals about the external world have centred around the idea of a social stereotypes or sociotypes. Tajfel (1969) defines a stereotype as:

> "A set of characteristics attributed to a human group. Individuals who belong to the stereotyped group are assumed to be similar to one another with respect to those characteristics, and to differ with regard to the same attributes from other contrasting groups"

In an earlier paper Tajfel & Wilkes (1963) defined the essential feature of stereotyping as:

> "exaggeration of some difference between groups classified in a certain way, and of minimising the same differences within such groups"

A number of techniques have been used to measure and analyse stereotypes or sociotypes including the content analysis of essays (Mead & Metraux, 1957), sentence completion tasks (Holland, 1963), and complex multiple methods such as repertory grid technique, discriminant analysis, and smallest space analysis (Coxon, 1971). Another method consists of asking respondents to extract from a large and varied list a small number of characteristic traits relevant to each of several selected occupational titles. Each set of traits picked by a significant proportion of the respondents is then assumed to constitute a social stereotype (Walker 1958). Walker employs numerical techniques in order to provide an index of stereotypic strength and later orders a number of occupations according to the index from least to most strongly stereotyped. Yet another method is the use of the Semantic Differential in which respondents are asked to rate a number of occupational titles on a number of 7 point bi-polar scales. These ratings are then averaged over the group of respondents and profiles of each occupational title drawn. (Beardslee & O'Dowd, 1961,1962). The position adopted by Beardslee & O'Dowd that such occupational images are socially real and that they are perceived similarly by average members of different cultural groups contrasts strangely with the findings of other researches that certain roles are perceived differently by different groups. For example the school

teacher role has been found to be perceived differently by parents, pupils, and school administrators (Biddle & Thomas, 1966) and, also, studies of the school superintendency role revealed that:

> "The assumption that there is consensus on role definition on the basis of which socialisation takes place is untenable for the occupational position we studied..... Our research experience suggests that the different expectations held for incumbent's behaviour and attributes are crucial for an understanding of their different behaviours and characteristics. Theoretical formulations which attempt to explain different behaviours of incumbents of the same position cannot be based on concepts in which the postu te of role consensus is involved"
>
> (Gross et al. 1958)

The disparity between the idea of social stereotyping and the idea that different individual and group perceptions of a particular occupation account for differences in performance between individual role encumbents in that occupation is so enormous that doubt must be raised concerning the utility of the concepts and the appropriateness of the methods employed. It seems improbable that research into social stereotyping will be any more successful than occupational prestige hierarchies in explicating how occupations are variously perceived. The searches for objective prestige hierarchies and objective sociotypes look equally futile because they suffer from the same methodological weakness, namely the fallacious attempt to relate individual behaviour to that of typical members of groups in which the

typical member is supposed to have a set of characteristics that have been averaged separately across the group.

An altogether more promising approach that does attempt to come to grips with individual cognitive organisation of occupational perception is that of Reeb (1959) who recognised the importance of what he called subjective occupational structures in the context of vocational guidance.

> "Nevertheless it is a fact that various job-classifications are used, and particularly that vocational guidance is given according to very many systems, more or less objective and well followed up. Without going further into this matter, the author would hazard the statement that most of these systems are subjective syntheses of fact and fancy, operating on the (probably correct) assumption that it is better to guide by intuition and sophisticated guesswork than not to guide at all"
>
> (Reeb, 1959).

Reeb goes on to define what he terms a Subjective Occupational Structure (SOS) which he suggests represents a core around which a system of guidance is organised with various techniques of assessment and assignment "ancillary ... to the basic organisation of occupations".

> "But if a firm empirical basis is necessarily absent, a consistent guidance system at least requires a stable

conceptual frame of reference in the guider's mind, a subjective scheme in which jobs are related to each other in some systematic way, some being more similar and some less"

(Reeb, 1959).

Reeb emphasies a clear distinction between 'total perception' and 'interest patterns' which he argues deal with quite different phenomena and states that

"Individual interest scores can only be interpreted by reference to population norms, while each individual SOS has meaning in itself"

(Reeb, 1959).

Reeb employs the method of paired comparisons to obtain ratings of judged similarity between a group of occupations and subjects his data to a technique of multidimensional scaling. This technique is discussed fully later in Section 4.1.4. It is sufficient to state here that a Euclidean Model for the stimuli (occupations) is postualted in which each stimulus is represented by a point in n dimensions, the point beingobtained by using the co-ordinates of orthogonal dimensions obtained by principal components analysis (Messick, 1954). Thus it becomes possible to produce a diagramatic representation of an SOS. Characteristically the first two components account for a large majority of the variation recorded and the diagram below taken from Reeb's study shows the result obtained from plotting the jobs against the first and second components. The first and second components may themselves be interpreted as clusters

of dimensions in the SOS and the representation of jobs as points clearly indicated the clustering of jobs along the components. The distances between jobs can be literally interpreted in terms of similarity or disimilarity along the component dimensions.

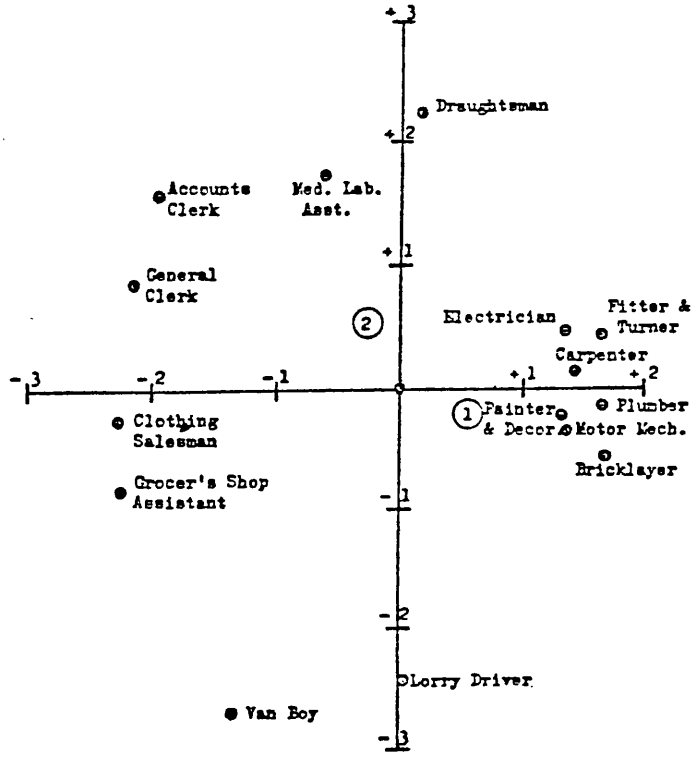


DIAGRAM 2: FIRST AND SECOND PRINCIPAL COMPONENTS: MODEL OF THE SOS

Reeb used 25 Youth Employment Officers on a training course as subjects and concluded that the overall similarity and homogeneity of ratings among the YEOs was indicative of the structuring effect of the course on the YEOs thinking about the jobs.

Although Reeb's study has been strongly influential in the preparatory thinking prior to the present study there are one or two shortcomings that must be mentioned. Firstly, Reeb asked his subjects to rate the jobs on a 7 point scale from 'Almost Identical' through 'About as Similar as Different' to 'Completely Different'. The subjects found this extremely difficult to carry out and intimated in conversation

that the comparisons they employed changed throughout the exercise for different jobs and for different pairs of jobs. Secondly the act of measurement presupposes theories about what is being measured and although Reeb's study is methodologically projective it falls well short of explaining how an SOS is held within individual psychological space. Clearly Reeb was aware of the limits of his approach and suggested extension of his methods in the direction of multidimensional perception. He also suggested that this approach may be useful in the study of those seeking vocational guidance.

> "The importance of knowing how a school leaver sees the 'world of work' has been widely recognised. He usually knows what job he wants but one cannot be sure what the job title means to him. If the adviser could know, for an individual school leaver, how a particular desired job is seen in relation to others, how the jobs are grouped, and what determines the grouping, then his expressed job preference could be understood as part of his perception (perhaps immature or primitive) of jobs in general"
>
> (Reeb, 1959).

It is surely extraordinary that after twenty years there is so little evidence of any application and extension of Reeb's methods and approaches in studies of young people's perceptions of the world of work for which they seem to be so well suited.

4.1.3. The subject matter and developments within occupational cognitive sociology are similar to and closely connected with those of occupational cognitive psychology discussed above and the problem of occupational perception and cognition have brought sociologists and psychologists together to a considerable extent. However, although the borders between the two disciplines have become more fuzzy they are each nevertheless working within different traditions and each with a different focus. The psychological tradition has been concerned with individual and group cognition, perception, evaluation, and decision making concerning occupational choice and prestige hierarchies. The focus has been on ways in which individuals and groups construct and organise mental models by means of objectively or subjectively definable occupational structures which reflect and order external outside world realities. The sociological tradition has absorbed and extended these psychological developments but the focus here has been the unequal access to and distribution of society's resources under headings such as role theory and social stratification theory.

The combination of these subjective psychological concerns with the processes of role acquisition and social stratification have led to the development of a cognitive sociology. For example Musgrave (1967) introduced the concept of a 'role map' in connection with his proposed sociological theory of occupational choice.

> "The child has learned to build up a role-map of his society so that he can locate occupational names upon it and can know the role prescriptions associated with these names. From such a map the child learns something of the way that roles are articulated in the occupational structure so that he knows near and complimentary roles" (Musgrave, 1967)

More recently the work of Coxon (Coxon, 1971) and Coxon and Jones (Coxon & Jones, 1974) has culminated in the publication of two major research reports concerned with the subjective aspects of social stratification (Coxon & Jones, 1978) and the social meaning of occupations (Coxon & Jones, 1979). These researchers begin by thoroughly reviewing existing sociological knowledge of occupational perception, competing accounts of subjective and objective social structure, cognitive maps and social worlds, prestige hierarchies, cross-cultural and historical aspects of occupations, occupational evaluation, social mobility and other questions that sociologists have asked about occupations. They then turn their attention to occupational cognition.

> "Despite its sometimes elusive properties, cognition is central to any sociological account of meaningful behaviour since it refers to the ways in which the actor relates to the world, how he defines the situation, and how the objects in the situation are construed and given meaning"
>
> (Coxon & Jones, 1978)

Coxon & Jones utilise the concept of cognition according to the formulation developed by Parsons and Shils (1962) who drew attention to two fundamental aspects of cognition, discrimination and generalisation. Discrimination is concerned with differences between objects and with different properties of the same objects while generalisation is concerned with the process through which groups of objects with similar properties are classed together. Coxon and Jones selected their subjects and occupational titles and then collected similarities data in the form of

paired and triadic occupations similarity rating schedules generated by computer in order to obtain randomised pairs. The data is then aggregated and multidimensional scaling technique used to represent the averaged similarity ratings. Group and individual data is further analysed to explore whether the aggregated average similarity ratings are a function of a consensus occupational configuration or whether subjects' similarity judgements refer to different subjective occupational structures. These analyses are made possible by the use of a computerised multidimensional scaling technique INDSCAL (Individual Differences Scaling) which can provide a group structure or map to which all private maps refer and by means of which they may be compared with each other. The researchers found that different subgroups of people cluster jobs in different ways and that occupational images differ from person to person and from group to group.

> "Put into sociological jargon, this means that images of the occupational structure differ from one another not accidentally, but because of socially structured causal processes"
>
> (Coxon & Jones, 1978)

In their later book these researchers have stated:

> "One of our original aims was to show the existence of socially patterned differences in the ways people interpret, think about, and make comparisons between occupations. We have succeeded in this modest aim of showing that such differences do indeed exist, and this is no means trivial, for it provides a set of counter examples to the conventional sociological wisdom in this field. What we have not done is to give a complete account of the social processes by which such differences in occupational cognition and evaluation

might arise"

(Coxon and Jones, 1978)

The importance of the work of Coxon and Jones in relation to the present study cannot be overstated. Their work may be construed as a critique of sociological positivism. They are "embarassed by crude methods of quantification and by the way in which meaning is systematically excised from quantified data, to be replaced by the sociologists speculations upon aggregated versions of those data" (1979:191). They have drawn attention to differences in occupational cognition between individuals and groups but cannot for the time being describe or explain what form these processes, which they call social processes, may take. (The position adopted in the present study is that these processes are psychological rather than social). Finally Coxon and Jones cast a good measure of doubt on the reliance placed by sociologists on single dimensions of overall occupational status. They point out that similarity ratings and rank orderings of occupations in terms of income are not the same as rank orderings in terms of autonomy or even prestige thus adding to the complexities of individual differences in occupational cognition and evaluation.

4.1.4. This section might equally well have been called 'The Search for Inter- and Intra-Personal Dimensionality' since the contributions of mathematical psychology towards cognitive mapping have come about within two quite seperate and clearly defined traditions of psychology - general experimental psychology, and the study of individual differences.

General experimental psychology was from the outset concerned with finding general laws applicable to human behaviour in relation to particular stimuli. One branch of experimental psychology, psychophysics, has

generally considered one aspect of such stimuli at a time, for example brightness, colour, or pitch. Individual differences are of little scientific interest in these circumstances and may even be minimised by controls through careful selection or training of subjects. An alternative approach has been, by contrast, the study of individual differences and the distribution within the population of various characteristics of human activity whether mental, physical, sensory or motor. Each of these two different approaches has gradually evolved its own measurement and statistical techniques. These may be simplified for present purposes and called the development of test theory and technique, and, the development of scaling theory and techniques.

In the test tradition Galton (1883), mentioned earlier in Chapter 3, was responsible for some of the earliest experiments on individual differences for which he devised special statistical techniques. A breakthrough in measuring individual differences came with Alfred Binet's tests of comprehension, judgment, and reasoning. The first test was published by Binet and Simon in 1905 and it introduced a new concept, Mental Age (MA) which could be used to assign mental status to children independently of their physical or chronological age (CA). At about the same time Spearman was developing his theory of 'g' general ability (Spearman 1904). Spearman argued that the tendency towards positive correlation in psychological tests could be explained by supposing that they measured a common underlying factor - general intelligence. No doubt spurred on by the First World War and the need to classify, select, and allocate large numbers of military manpower testing flourished and developed including more tests of mental and scholastic ability (Burt 1921). Spearman's work led to the idea that not one but several factors could be derived from the correlations of subsets of psychological variables and Kelley, Hotelling, Thurstone, Thomson, and Burt among others attempted to devise methods for

obtaining the most important dimensions within a large field of variables, including multiple factor and principal components techniques.

In the scaling tradition a subject is required to make judgements along a dimension chosen by the experimenter in relation to particular stimuli. Any qualitative or quantitative attribute in relation to which the stimuli can be perceived to exhibit 'more' or 'less' will do. One of the simplest cases of this judgemental process is a rank order. This gives the position of each stimulus along an attribute continuum. A method which gives the distance between any two stimuli along a distance continuum is the technique of paired comparisons in which a number of stimulus objects are compared with each other along some dimension in different combinations of pairs, the final result being the location of each stimulus object with respect to every other object along a continuum representing the dimension. Early attempts at scaling theory were intended to measure and elucidate this discriminal process by calculating discriminal deviations and dispersions for each stimulus and by defining scales in terms of frequencies of discriminal processes for any stimulus. Thurstone's pioneering work in this field culminated in his 'Law of Comparative Judgment' (Thurstone, 1927). In many areas of psychological interest however the number and nature of the dimensions underlying the relationships between objects within a particular area are not known and even a dimension which is intuitively understood to be unitary may in fact be composed of several dimensions. Clearly traditional unidimensional scaling methods are unsatisfactory in a psychological area of unknown dimensionality. A multidimensional scaling approach would overcome these difficulties and Thurstone's scaling theory was extended to multiple dimensions underlying an area of perception by Richardson (1938) after Young and Householder had given the necessary and sufficient conditions for

a set of numbers to be considered the interpoint distances in Euclidean space. Their theories provided the basis for ascertaining the dimensions of the space containing such points and for calculating the projections of the points on a set of orthogonal axes within the space. (Young and Householder, 1938). There have been many subsequent applications and developments within this tradition including those of Klingberg (1941), Torgerson (1952), Messick (1954,1956), Reeb (1959) (Reeb's study is discussed in Section 5.1.2.), Horan (1969), and Carroll and Chang (1970), and multidimensional scaling techniques are now widely used in investigations of multivariate visual and auditory stimuli, of the interrelationships between a number of objects, and of the cognitive or perceptual process underlying responses.

It is of interest that in both the test tradition and the scaling tradition the mathematical models have progressed from treatment of single dimensions to multidimensional approaches and that although the focuses of their separate areas of scientific interest have been different they have arrived independently at a similar position in terms of the mathematical assumptions and operations underlying their methods. The remaining discussion will be limited to the work of Patrick Slater within the test tradition and that of Carroll and Chang in the scaling tradition who have been responsible for developing two of the most widely used multidimensional analysis and cognitive mapping models.

It is extremely difficult to follow the development of Slater's thinking without studying the succession of academic papers which he has produced steadily over the last thirty years (Slater, 1951, 1958, 1953, 1960, 1965) although to some extent his work is summarised in the two volumes of 'The Measurement of Intrapersonal Space by Grid Technique' especially in

Volume 2 (Slater, 1977, 1978). Essentially Slater began by applying factor analysis to problems he encountered in research at the National Institute of Industrial Psychology and in his work on the selection of personnel at the War Office. Later he became interested in matrices of negative correlations in experimental procedures thatgenerated such matrices, and in appropriate methods of analysis. Slater found that principal components analysis was preferable to factor analysis when applied to matrices of predominantly negative correlations and found that his methods were applicable to psychological data elicited by repertory grid technique. In 1964 Slater received a grant from the Medical Research Council to develop his methods further and to devise computer programs for the analysis of grids gneerated in clinical or academic work. By 1973 around 10,000 grids per annum were being submitted to the M.R.C. analysis service. There can be little doubt that Slater's work led to a substantial increase in appreciation of the potentialities of grid technique and, also, that the strong demand for various forms of analysis led to the revision and improvement of Slater's programe. Essentially Slater's analysis consists of the resolution of a matrix of scores into its principal components. Subjects have generally rated a number of stimuli (elements) in terms of a number of dimensions (constructs) with a column for every element and a row for every construct. The resulting table can of course be read by column or by row. The entries for a given element locate it in a construct space in which there is an axis for every construct. The entries for a given construct locate it in anelement space in which there is an axis for every element. The two views of the data are usually of equal psychological interest and principle component analysis provides a common coordinate system by means of which the two dispersions can be plotted or mapped in relation to each other. The resulting composite diagram shows the distances of the elements from each other and from each construct as well as the distances between the constructs and between each contruct and each element. This composite diagram represents

in every sense a psychological map of the relationships between a set of elements and a set of constructs within the psychological space of an informant.

The concept of relations between a set of stimuli represented by points within a geometrical model is also fundamental to multidimensional scaling techniques. The use of such distances to create a psychological map is more problematic in multidimensional scaling analysis (MDS) because the dimensionality of the geometrical model may not be known. However the advantage of MDS is that a metric model of interpoint distances can be constructed from only a rank ordering procedure among pairs of stimuli. The method works by comparing the rank orderings of the proximity data.with a random configuration of points and then reducing 'stress' between the two orderings until an acceptable fit is obtained. With a number of informants the similarity judgements are aggregated and the analysis performed on average data. The work of Horan (1969) and Carroll and Chang (1970) led to a further development of the method in which a 'Normal Attribute Space' is postulated which consists of all the dimensions used by all the subjects even though subjects may vary among themselves with regard to the dimensions they are using. This conceptualisation allows for a level of communal perception and also for individual idiosyncracy. Individual differences are now interpreted as subjects applying different weights to their own dimensions of a common space called by Carroll and Chang "The Group Stimulus Space". All the calculations are performed by a computer program called INDSCAL which has become probably the most widely adopted approach in the MDS repertoire. INDSCAL was used by Coxon and Jones (1978) in the study discussed in some depth in the previous section. Unlike the simple distance model described earlier the INDSCAL model enables the estimated dimensions of the group space to be fixed using whatever commonality there may be in the subject's judgements. Both the simple distance

and the individual difference models in MDS allow for a two dimensional diagramtic representation of a configuration of stimuli in relation to similarity judgements and it has been claimed that the INDSCAL dimensions correspondto real perceptual processes.

4.1.5 The employment of grid methodology does not necessarily tie the researcher to a particular theory or method and, although Kelly's development of the Repertory Grid undoubtedly brought grid techniques into greater prominence, his theory of personal constructs and the repertory grid are by no means indispensable to each other and, indeed, the collection of data from individuals and groups in the form of a two way array or matrix was already a well established practice.

> "Grids are obviously specimens of the two way tables or matrices which had been studied in mathematics before they were observed in psychology. Though their content is different their formal properties are much like those of the tables of scores of objective psychological tests which have furnished data for principal component analysis and factor analysis since the beginning of the century"
>
> (Slater, 1977).

Grid method need have no theoretical basis and there are no generally accepted rules for the construction and application of grids. On the contrary, its attraction is that it is a peculiarly flexible and adaptable instrument that can be adjusted to the requirements of widely differing experimental situations such as wine tasting, quality control in manufacturing industry, market research, attitudes to seaside resorts,

architectural and Environmental Design, management development, suitability for promotion assessments, as well as the well known range of clinical applications. Chetwynd (1974) has argued that a generalised grid technique for measuring the content and structure of the cognitive system has evolved from Kelly's Repertory Grid, Osgood's Semantic Differential, and Stephenson's Q-sort. Slater (1977) reiterated this argument and adds Morenos sociometric test as another example of a test capable of generating data in the form of a grid given a small amount of modification and extension. Moreno (1934) devised a test for studying interpersonal relationships in social groups. Typically subjects are asked to choose other members to join them in a group in order of preference. All that is needed to extend this method into a grid method is for subjects to be asked to provide criteria for their choices instead of simply choosing on the basis of an overall preference. The rank ordering of potential group members by each subject along each of their own criteria would yield a grid. Stephenson (1935) devised a technique called Q—technique which consists of correlating a group of subjects according to a number of tests instead of the more usual R-technique, the correlation of test results for a group of subjects. The two correlation tables from R and Q technique are likely to be of different sizes depending on whether there are more subjects than tests or vice versa. Use of Q technique is obviously less arduous when there are fewer subjects than tests and Stephensons work progressed towards more detailed studies of fewer cases. Finally he arrived at a procedure for collecting a grid of data from one subject (1953). In order to standardise the tests before using the scores to carry out the correlations between the different subjects Stephenson replaced the usual test format with a procedure in which each subject assigned the test items on cards according to a fixed distribution, the Q-sort. Clearly when a subject carries out a different Q-sort on a number of occasions each in relation to a new criterion the result is a grid in which the columns refer to the items

and the rows to the different sorts. Osgood's semantic differential (Osgood, Suci, & Tannenbaum, 1957) on the otherhand is designed to measure variation not within a psychological space but within a common semantic meaning space although it is a flexible technique which can be adapted to the requirements of almost any object of research simply by varying the scales. Osgood has suggested a theoretical explanation for meaning and makes a number of assumptions about the nature of a mediational process which leads very conveniently to his measurement technique. A further assumption is that most of the variation in semantic judgements is accounted for by three factors, evaluation, potency, and activity, that are completely general over subjects and concepts. Most commonly the semantic differential consists of a number of different sheets, each representing a different concept and containing identical bipolar scales. The subject's task is to rate each concept on the scales. Obviously the resulting data can readily be tidied up into a matrix format in which the columns represent the concepts and the rows the scales.

It is useful to see Kelly's repertory grid in historical perspective and to recognise that it is a variant of a method of collecting data that has been used in pursuit of a variety of different research purposes. The generality of the method is clear from the following table given by Slater (1972, page 4).

Operators	Operands	Source
Tests	Subjects	Objective Psychometry
Scales	Concepts	Semantic Differentials
Constructs	Elements	Grids.

Clearly the context in which grid technique is used will determine the methods of construction, application, and analysis but at the same time the element of commonality in the use of grid techniques suggests, as Slater puts

it, that.....

> "We should look, for a change, at the horse instead of the goods displayed on the cart it happens to be pulling at the time"
>
> (Slater, 1977)

An encouraging aspects of this commonality is the fact that many experimenters starting from different positions and with different objectives have seen advantages in using this approach to data collection and measurement both in the general as well as in the individual case.

4.1.6 The term 'cognitive map' has been in use for some considerable time (Tolman, 1948) and has come to mean many things. Human beings are self-evidently endowed with a capacity for mental imagery. Mental images may be regarded not simply as pictures in the head but as blueprints for obtaining information about the environment. Every individual that can record or anticipate the arrangement of objects in their environment is capable of making a cognitive map. Everyday language is full of dimensional words that evoke images of certain kinds of experience. We talk of being in or not in a 'position to do something' or, of clarifying the 'position'. We speak of a person's knowledge as 'wide' or 'deep', we may see things from 'one side' but not from the 'other side'. Human experience is collated in 'areas' or 'fields' and, when we cannot make sense of our experience, we are 'disorientated' or simply, 'lost'. We have cognitive maps of places we know. These maps include landmarks, routes, paths, districts, edges and boundaries that not only help to organise information and guide exploration when we physically walk to the shops, to the post office, or to the bank, but the very same mental maps

allow us to go to the shops, post office, and bank in our imaginations whilst sitting in a chair at home. When we wish to be sure not to forget things we make up mnemonics. Mnemonics are simply cognitive maps by which we obtain information concerning an arbitrary list of objects by means of the location of each object within a well known series of objects. Such cognitive maps are not static but subject to additions in the light of new experience, loss of detail owing to forgetting and to confusion and interference. They can be detached from their original function, acquire an independent existence, and can become sources of information in their own right.

The pervasiveness of the mapping metaphor in everyday language, learning, and thinking has been noted. However, the precise employment of cognitive mapping techniques as evidence and explanation in the behavioural sciences is relatively recent. A map is a model of relationships between a number of points and the points can equally well refer to psychological objects as to outside world objects. Sometimes the task is not so much the location of objects within the map but rather to define the map with reference to the objects. The latter is often of more psychological interest than the former. The studies and literature reviewed throughout this section have been concerned with the underlying cognitive characteristics of prestige hierarchies, with the cognitive mechanisms of stereotyping, with cognitive similarities and differences within and between groups, with subjective occupational structures, with role maps, with mathematical techniques and interviewing devices for obtaining and analysing psychological information in a structured format that allows for diagramatic representations of the data and of relationships between the data. In particular, the combinations of personal construct theory, grid technique, and the appropriate mathematical treatments provides both the theoretical justification and the practical equipment with which to construct cognitive maps.as evidence

and explanation of human characteristics and behaviour. These maps, which are part of the equipment of the social scientist, are essentially no different from the maps that individuals construct and utilise for their own benefit, a point that is entirely consistent with Kelly's concept of 'man the scientist'. These maps are not simply representations of the outside world they are anticipatory schemata through which individuals construe the world in terms of the replication of events and in the light of previous experience. These ideas lead conveniently to the presentation of the philosophy and theory of personal constructs contained in the next section.

4.2 The Philosophy, Theory, Technique, and Analysis of Repertory Grids

4.2.1. The philosophical assumptions underlying personal construct theory have been stated by Kelly himself so clearly that any further elaboration of them seems entirely superfluous.

> "Like other theories, the psychology of personal constructs is the implementation of a philosophical assumption. In this case the assumption is that whatever nature may be, or howsoevery the quest for truth will turn out in the end, the events we face today are subject to as great a variety of constructions as our wits will enable us to contrive. This is not to say that one construction is as good as any other, nor is it to deny that at some infinite point in time human vision will behold reality out to the utmost reaches of existence. But is does remind us that all our present perceptions are open to question and reconsideration and it does broadly suggest that even the most obvious occurrences of everyday life might appear literally transformed if we were inventive enough to construe them differently.

> This philosophical position we have called constructive alternativism and its implications keep cropping up in the psychology of personal constructs. It can be construed with the prevalent epistemological assumption of accumulative fragmentalism, which is that truth is collected piece by piece. While constructive alternativism does not argue against the collection of information, neither does it measure the truth by the size of the collection. Indeed it leads one to regard a large accumulation of facts as an open invitation to some far-reaching reconstruction which will reduce them to a mass of trivialities".
>
> (Kelly, 1970)

Bannister, the editor of the book in which the above passage was written has himself written in the same book published fifteen years after the first presentation of personal construct theory.

> "The fate of personal construct theory, since its formal presentation in 1955, has been strange in that it has had neither the kinds of acceptance nor the kinds of rejection that are customary for new ideas in the field.... Rather it has had a slow, almost unvarying momentum, such that uses of it and curiosity about it mount steadily".
>
> (Bannister, 1970)

Perhaps Kelly too is aware of the coolness of the reception given to personal construct theory when he writes following the passage quoted above.....

"A person who spends a great deal of time collecting facts is not likely to be happy at the prospect of seeing them converted into rubbish..... With these shining nuggets of truth in his grasp it seems unnecessary for him to take responsibility for the conclusions he claims they thrust upon him. To suggest to him at this point that further human reconstruction can completely alter the appearance of the precious fragments he has accumulated together as well as the direction of their arguments, is to threaten his scientific conclusions, his philosophical position, and even his moral security. No wonder, then, that..... our assumption that all facts are subject..... to alternative constructions looms up as culpably subjective and dangerously subversive to the scientific establishment".

(Kelly, 1970)

Clearly Kelly's philosophical statement of constructive alternativism is not concerned with proposing a theoretical position in competition with other psychological theories but rather as a completely self-contained alternative to them. However his ideas may have been received and whatever their ultimate destination in the annals of science Kelly achieved at a stroke a complete reconstruction of his field.

4.2.2. Personal Construct Theory is stated in the form of a fundamental postulate and eleven elaborative corollaries.

(a) Fundamental postulate: A person's processes are psychologically channelised by the ways in which he anticipates events.

(b) Construction Corollary: A person anticipates events by construcing their replications.

(c) Individuality Corollary: Persons differ from each other in their construction of events.

(d) Organisation Corollary: Each person characteristically evolves, for his convenience in anticipating events, a construction system embracing ordinal relationships between constructs.

(e) Dichotomy Corollary: A persons construction system is composed of a finite number of dichotomous constructs.

(f) Choice Corollary: A person chooses for himself that alternative in a dichotomised construct through which he anticipates the greater possibility for extension and definition of his system.

(g) Range Corollary: A construct is convenient for the anticipation of a finite range of events only.

(h) Experience Corollary: A persons construction system varies as he successively construes the replication of events.

(i) Modulation Corollary: The variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience variants lie.

(j) Fragmentation Corollary: A person may successively employ a variety of construction sub systems which are inferentially incompatible with each other.

(k) Commonality Corollary: To the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of that person.

(l) Sociality Corollary: To the extent that one person construes the construction processes of another he may play a role in a social process involving the other person.

The fundamental postulate, proposed a new model of man, 'Scientific Man'. Man is not just an information processer, an adapter to his environment, a reducer of needs and drives, a conditioned automat on, or a concatenation of acquired roles. The new model of man is one in which man struggles to make sense of the world by attempting to anticipate events, by formulating theories, and by testing his anticipations or theories against his experience in terms of their predictive capacity. The striving for personal meaning depends on the creation of tentative and provisional theories through which man endeavours to make sense of and to understand the events of his life. Thus man's understanding is at least one step removed from the 'facts', or 'reality' and man does not respond to stimuli or phenomena but to what he interprets these stimuli or phenomena to be, even though he may assume that his life and its events are largely factual or real. To understand man one must investigate the nature of his theories and this is the essence of the psychology of personal constructs.

In addition to the fundamental postulate six corollaries of personal construct theory have particular relevance for the present study. The construction, individuality, and dichotomy corollaries are all concerned with the key idea of the construct. "A construct is a way in which some things are construed as being alike and yet different from others" (Kelly, 1955).

The construction corollary implies therefore that individuals employ constructs to detect similarities and differences in the recurring features of their experience. The individuality corollary refers to the fact that people may interpret the same events differently and the dichotomy corollary specifies that each individual possesses a finite number of constructs and that each construct is dichotomous or bipolar. The range corollary follows from the ideas that constructs are finite in number and bipolar. Kelly used the term 'focus of convenience' to indicate that there are groups of things for which an individual finds a particular construct most meaningful and useful and for which it is likely that a particular construct was developed or incorporated into the construct system. Another term, 'range of convenience' has been introduced to refer to all those 'things' to which a particular construct could be applied. The commonality corollary is the converse of the individuality corollary which emphasise that individuals may construe the same events differently. People can also be similar in that they construe events similarly and they do so by means of similar psychological processes, and events have the same meaning for them. Finally, the sociality corollary implies that for one person to interact effectively with another it is necessary for a person to construe anothers constructions. "In order to play a constructive role in relation to another person one must not only... see eye to eye with him but must --- have an acceptance of him and his way of seeing things... social psychology

must be a psychology of interpersonal understandings, not merely a psychology of common understandings". (Kelly, 1955: 95). The importance of the sociality corollary is considerable because it leads into a consideration of Kelly's unit of social interaction and cohesion, the role, and constructs that refer to the outlooks of others are called role constructs. Kelly defined role as

> "..... an ongoing pattern of behaviour that follows from a person's understanding of how others who are associated with him in his task think"
>
> (Kelly,1955, pp97-98).

and seeing eye to eye with another becomes seeing construct to construct.

The fundamental postulate and the six corollaries described in detail above are fundamental to the design of the present study and provide guidelines for the construction and administration of the present research instrument, the repertory grid, which then establishes operational definitions for the main features of the theory.

4.2.3 There is no standard form for a repertory grid and the selection of the form, dimensions, and content is always related to a particular problem, enquiries, or context. The repertory grid is probably best regarded as a structured interviewing device rather than as a test because the criteria for the development of objective psychometric tests are not met. Kelly devised repertory grid technique as a flexible method of exploring the personal construct systems of his clients in psychotherapy.

> "Thus, for any of us, the sharing of personal experience is a matter of construing the other persons experience and not merely a matter of having him hand it to us intact across the desk. The psychology of personal constructs therefore lends itself quite conveniently to the handling of the theoretical problem of gaining access to private worlds"
>
> (Kelly, 1955)

The repertory grid is thus a formalised procedure for gaining access to private worlds in a more systematic and structured way than is possible in ordinary conversation and in a way then lends itself to subsequent precise analysis of the interrelationships within each private universe.

Fundamental to the methodology of repertory grid technique is the selection and collection of elements and constructs. Because of the flexibility of the technique the range of phenomena or events over which the elements and constructs can be applied must be almost infinite. The elements and constructs are commonly defined by the area of investigation whether this is a clinical situation or a research activity. A study might be concerned with a person's attitudes and feelings about the people he or she knows or meets at work. A study might be concerned with a person's attitudes to a number of holiday resorts, to different

chocolate bars or wines. Whichever is the subject of a study often indicates the kinds of elements that will be used in the grid. In some situations the researcher may not be clear about which elements are appropriate and may need to sample them from the individual or population under consideration. A researcher may include one or two elements of special interest in the research and leave the subject or subjects to provide the remainder. The only practical constraint faced by the clinician or researcher is that the elements be relevant and meaningful to the client or research subjects. If this were not so a grid respondent might fluctuate in the meanings he or she attaches to the particular element with each successive evaluation of the element in terms of the constructs.

Although it is common for the researcher to provide elements or to assist the subject with the selection of elements it is usual to elicit the constructs from the subject. The most frequently employed procedure is the use of the triad sort method in which three elements are considered by the subject who is then asked to suggest an important way in which two elements are similar and different from the third. This procedure produces a personal construct from the subject. The selection of element triads may be at random or according to a pre-arranged sorting procedure. Eliciting constructs from subjects is a time consuming affair and in the case of a large research exercise it may not be possible to elicit constructs from all the subjects. In this case a group of common constructs may be elicited from a sample of the total subjects and these can then be used in a standard grid for all the subjects. Once the grid has been constructed it is a relatively simple matter for the subject to enter a score for each

element in terms of each construct. This can be done in a group situation in the case of research activity and once the processes have been explained there may be no particular need for the experimenter to be present. There are a variety of scoring methods and scales. Ranking or rating procedures may be used. The selection of a particular scoring method has important implications. For example an odd-numbered scale allows for the possibility of a neutral score at a mid point in the scale whereas an even-numbered scale obliges the subjects to make a clear decision one way or the other.

4.2.4. A completed grid provides a matrix of data which may be subjected to analyses of varying degrees of complexity from a simple manual analysis of significant or interesting evaluations to a sophisticated mechanical analysis to facilitiate the calculation of complex inter-relationships between all the variables. A variety of computer programes specially designed for grid analysis is available. However, probably the most widely used and certainly the most comprehensive analyses available are contained in the Grid Analysis Package which includes a number of programs serving a variety of analytical and research purposes written by Dr. Patrick Slater. (Slater, 1972).

For the analysis of a single individual grid INGRID is used. This program calculates the total variation present in a grid and gives a breakdown of variation accounted for by each of the constructs and each of the elements, the correlations between the constructs and elements, the distances between the elements and the inter-relationships between constructs and elements. INGRID concludes with a principal components analysis giving a detailed account of all the relationships present in a grid. From the output of INGRID a very thorough detailed

study of the subject who completed the grid becomes possible. For a less detailed or research specific analysis the researcher may extract those measures with which he or she is most concerned and disregard the remainder.

In a situation where a number of grids are aligned by construct and element, as in the case of provided as opposed to elicited grids, the SERIES program can be used to combine all the grids together and to calculate a mean or consensus grid. SERIES also carries out an analysis of variance and the total variation about the general mean of the consensus grids is broken down into that due to individual grids in the group, due to different element evaluations, and due to grid/element interactions. A great deal of useful information becomes available through the analysis of variance and the consensus grid can be subjected to further analysis as an individual grid using INGRID the output of which provides a detailed study of the average or typical member of the group.

The program PREFAN produces an analysis similar to INGRID but accepts a grid of larger construct dimensions than those acceptable by INGRID. It is particularly suitable for combining grids where the elements are common to all the grids and aligned but where the constructs are not. In this case the part of the output referring to the elements represent the elements as seen by the group as a whole and the constructs of each individual grid are listed seperately without their correlations as these are likely to be too numerous.

Other programs available in the Grid Analysis Package are not described here because they are concerned with analytical treatments that are not required by the present study reported here.

Chapter Summary

Following on from Chapter Three, Chapter Four begins by arguing for a new approach to the subject of occupational choice and suggests that a substantially different approach is called for on the grounds that any explanation of social behaviour must first adequately explain individual behaviour but in a way that allows observations of individual behaviour to be aggregated in order to explain the behaviour of particular groups. This principle is advanced as fundamental to the present study.

In section 1 the possible constituent elements of a new approach are identified and explored. They are drawn from established work in clinical psychology, occupational cognitive psychology, occupational cognitive sociology, mathematical psychology, and grid technique. The unifying concept of cognitive mapping is introduced and explained.

In section 2 the philosophical and theoretical ideas of personal construct theory are introduced together with the main features of repertorygrid technique and the means of grid analysis.

Taken as a whole Chapter 4 makes clear the academic ancestry of the new approach adopted in the present study. It becomes clear that the new approach is a species of cognitive mapping in which the philosophical, psychological, and analytical theories and methodology rest on established work on personal construct philosophy and theory, the collection of data in the form of grids, and proven methods of grid analysis. Chapter Four therefore provides the complete theoretical and methodological foundation for the present study.

CHAPTER FIVE

The Rationale and Design of the Research

To follow next page

Thirdly, the recent widespread increase in activity at the interface between school and work described in Chapter One and the increasing resources allocated to these activities by Governments, Industries, Local Authorities, Schools, local employers, and individuals are directed towards understanding, developing, and to some extent modifying, young people's attitudes to work and to certain occupations. An improved knowledge of how young peoples' attitudes towards work and various occupations are held and the mechanism by means of which they make occupational choices is essential if these activities and resources are to be most effectively deployed and sustained.

Finally, a thorough examination of the literature and research in the area of the transition from school to work described in Chapter Two reveals one or two important voids. In particular it has not been possible to discover the existence of an approach, technique, or instrument that explains occupational choice behaviour in particular cases and which allows the researcher access to the private worlds of respondents in order to explore their attitudes towards different occupations.

The main objectives of this research were therefore:

(a) to develop and carry out trials on an instrument which accounts for occupational choice in the individual case and also which allows data collected for individual cases to be aggregated so that perceptions of various occupations among different groups may be elucidated and compared.

(b) by using this instrument to carry out an exploratory study of the perceptions of a selection of occupations available

5.1 The General Research Aims

The ideas for the research to be described had several different origins.

Firstly, concern was mounting throughout the 1970s among large employers of school leavers (a) about the quality of educational output as manifest in new recruits to industry and commerce, (b) about the attitude to work of new entrants to industry and commerce and, (c) about the share of educational talent going into industry from among those of school leaving age. It was suggested that teachers may not be orientated towards industry themselves and may have an undue influence over pupils at the end of compulsory schooling which may deter pupils from careers in industry. The last concern in particular suggests a need for research into the processes by which young people come to their decisions about occupational choice and an examination of pupil and teacher attitudes to different occupations.

Secondly, the events and issues described and reviewed briefly in Chapter One relating to the evolving relationship between educational and work organisations and the emergence of national manpower policies require the development of a theoretically sound and practically efficient youth employment service by means of which young people are effectively guided through the difficult transition from education to work. Here again an understanding of the ways in which young people come to decisions about job selection and choice is essential.

to school leavers among teachers and among those who stayed at and who left school with a view to discovering for example, pupil and teacher attitudes to opportunities in industry for school leavers.

5.2 The Development of the Research Instrument

5.2.1 The Selection of an Appropriate Form of Research Instrument.

The selection of an appropriate research instrument was guided by the requirements of (a) and (b) above. Chapter Three describes in detail how a range of possible instruments was critically examined. Finally it was decided to adopt a cognitive mapping approach in which relevant psychological objects, in this case occupational titles, are located within a psychological space defined by relevant psychological dimensions, in this case evaluating criteria, employed by respondents in differentiating between the occupational titles. It was decided to collect the relevant psychological objects and criteria using a structured interviewing device in the traditional form of a repertory grid.

5.2.2 The Construction of the Research Instrument - Pilot Studies

The form of the repertory grid is straightforward. The objects to be evaluated (elements) are entered in the column headings and the evaluative criteria (constructs) in the rows. Establishing appropriate dimensions for the grid however is less straightforward. Fortunately a good deal of information was available about the dimensions of a large number of repertory grids used for clinical and research purposes from the records of the grid analysis service set up in 1964 by Patrick Slater at St. George's Hospital Medical School in 1964 with the aid of a grant from the Medical Research Council. Slater found that in a sample of

approximately one thousand grids submitted for analysis the modal number of constructs was found to be fifteen and the modal number of elements was twelve. (Slater, 1976). This information provided a useful guide for the administration of a small pilot study.

A pilot study was set up to provide answers to two important questions:

1. Would, for example, twelve elements be sufficient to elicit from the particular type of respondents selected for this research a large enough number of common constructs for later use in another grid administration.

2. Would, for example, a grid with twelve elements and fifteen constructs contain enough data and range over a wide enough area such that after analysis it would sustain idiographic conclusions about a particular respondent and permit comparisons between different parts of it.

Three opportunity samples were identified for the pilot study. Eight secondary school teachers who were participants in an M.Ed. course at the University of Bath agreed to co-operate. Forty eight pupils in their last year of compulsory schooling at a school near to the University of Bath where the researcher had well developed contacts also took part. The pupils' sample consisted of two groups, one of 28 and one of 20 drawn from high and low ability Mathematics sets respectively since it was felt desirable to explore whether academic ability as measured by prowess in mathematics would importantly affect pupils' abilities to carry out a grid completion exercise. Each of the three groups was subdivided into two roughly equal sections and

given slightly different instructions. Section I of each pupil group was asked to enter into the column headings of a blank 12 x 20 grid twelve job titles that they believed they were capable of doing regardless of whether they wished to do these jobs or not. Section II of each pupil group was asked to enter in to the grids any twelve job titles with which they were familiar. Section I of the teachers group was asked to enter into their grids twelve jobs that pupils leaving their schools obtained after leaving. Section II of the teachers group was asked to enter first their own job, Teacher, and then a further eleven job titles with which they were familiar. All the groups were then asked to enter constructs into the rows using the customary triadic elicitation procedure in which respondents select three elements at random and ask themselves the question "In what way are two elements similar and yet different from the third?" The answer to this question provides the emergent pole of a construct and the procedure is repeated until the respondent cannot produce further new constructs. No-ones supply of constructs is inexhaustible and some reach their limits very soon.

An analysis of the pilot grids shows that all the groups produced very similar constructs regardless of the differences in the instructions given. The largest number of different constructs was produced by the high ability pupils Section I (76 constructs) the lowest number coming from Section I of the low ability pupils (31 constructs). Section I and II of the teachers groups produced 52 and 49 constructs respectively. The teachers as a whole generated 24 common constructs the high ability pupils 27 and the low ability pupils 14. It was felt that with the very much larger samples to be used in the main study a 12 element grid would be sufficient to generate a large enough number of common constructs for extraction and later use. Also, the pilot study showed clearly that even pupils of low scholastic aptitude could manage the grid completion exercise, that teachers and pupils of varying ability employ similar constructs, that pupils and teachers share constructs in common,

and that teachers employ similar constructs whether evaluating pupils' jobs or jobs appropriate to their own level of occupational aspiration.

A number of pupil and teacher grids were then analysed using INGRID in the Grid Analysis package and the output of the analysis was then interpreted by the researcher and discussed with the respondents to see if the grids yielded valid information about them. The results of these discussions were overwhelmingly favourable and although the dimensions of the grid varied it became clear that a grid format of twelve elements and fifteen rows would be sufficient to obtain valid idiographic information from respondents and to enable the researcher to explore relationships between the elements, between the constructs, and between the elements and the constructs all of which would be essential for the main purposes of the research to be achieved.

5.3 The Selection of Research Samples and Sites

A study concerning itself with the attitudes and occupational choices of school leavers is clearly less value if it is based on a sample of school leavers or teachers which exhibits special characteristics. In so far as all schools are unique and their character shaped by particular features of their history, geography, local education authority, catchment area etc. the search for a 'typical' school may be considered arduous and unrewarding. However, the choice of more than one school for research purposes in which these choices are determined by the extent to which schools exhibit characteristics within the range of secondary education institutions may be considered more promising. After extensive consultation with senior officers in a large local education authority in the South West of England two schools were finally chosen for this study and their characteristics summarised below.

Northover School

Northover School is a mixed comprehensive school of approximately 1400 pupils situated close to a prosperous rural town North of a major city. The school draws on a favourable catchment area which includes a high proportion of owner—occupied homes in and around the town the surroundings of which are predominantly rural. A high proportion of children come from professional and managerial families with traditionally high expectations of education fostered partly by the excellent reputation of the local grammar school. Approximately 55% of pupils stay beyond the period of compulsory schooling and undertake sixth form studies. Indices of stress related to adverse socio-economic factors are low. (e.g. few free school meals taken, little truancy, very few juvenile court appearances etc.).

Southover School

Southover School is a mixed comprehensive school approximately 1400 pupils situated within the northern outskirts of a major city. The school draws on a catchment area which consists largely of a municipal housing estate in which approximately 15% of families are commonwealth immigrants. The surroundings are predominantly industrial. The vast majority of children come from working class families with approximately 20% remaining beyond the period of compulsory schooling. Indices of stress related to adverse socio-economic factors are high (e.g. a large number of free school meals taken, a very considerable truancy problem, a relatively large number of juvenile court appearances is customary). Because of its special problems this school has been designated an educational priority school.

The two schools chosen together represent a large part of the range of secondary schools in terms of relative advantage or disadvantage. Because of its rural situation the school leavers of Northover School habitually migrate Southwards to take up employment. They do this because there is little industrial or commercial development to the east or west and the major town to the south (in the northern outskirts of which Southover School is located) is much closer than the nearest town to the north which is in any case much smaller. One of the effects of the migration south of the Northover School leavers is to bring them within the same labour market as the Southover School leavers. It is therefore possible to observe the behaviour of the leavers of the two schools together in the same situation which has many advantages for the present study.

The potential pupil sample from the two schools includes all those pupils in their last year of compulsory schooling at the time of the study, i.e. in the fifth form, which in the case of Northover School was 218 pupils in 8 forms and in the case of Southover School was 250 pupils in 12 forms. The total potential pupil sample was therefore 468 pupils.

The potential teacher sample from the two schools includes all the full time and part time teaching staff at the time of the study which in the case of Northover School was 80 staff and in the case of Southover School, 88 staff. The total potential teacher sample was therefore 168 teachers.

5.4 Collection of Data

5.4.1 The First Grid Administration

The main purpose of the first grid administration was to elicit personal constructs from the pupil and teacher samples in order that common

constructs could be extracted for possible use in the construction of the provided grid to be administered subsequently in the second grid administration. Another purpose was to elicit from the pupil samples their occupational aspiration job titles (i.e. the job they would most like to obtain) for use later in the analysis. A third purpose was to give the teacher and pupil samples an opportunity to practice the grid rating procedure in which all the elements are rated on a 7 point scale in terms of all of the constructs. It was intended that this experience would be helpful to respondents when they came to complete the provided grids in the second grid administration.

Firstly, each teacher was sent a personal introductory letter about the research early in the spring term of 1979 (Appendix I). Secondly, notes and instructions on how to complete the grids were carefully drawn up and refined over a period of several weeks. A second letter, a copy of the grid completion instructions, a blank grid, and a blank piece of paper were supplied to all teachers prior to the half term break requesting each teacher to complete a grid in his or her own time over the holiday period and to hand it in to the school secretary upon returning to school (Appendix I). The main disadvantage of this method was that the teachers' grids could not be completed under supervision but there were the compensating advantages that (a) the teachers completed the grids when they were comparatively isolated from each other in their own homes and could not easily discuss the exercise and (b) the work of the school was not disrupted, a matter of some importance during a period of unusually bad weather and disruptive industrial action.

Arrangements were made with the two headmasters for the pupils to be briefed by the researcher during special morning assemblies. All fifth form tutors were similarly briefed at special meetings. With the exception of a low ability non-examination group at Southover School pupils completed their grids after the briefings in tutor groups during the daily early morning tutorial periods under the close supervision of their usual tutors. Each form tutor had received notes for guidance on the completion of grids by pupils from the researcher (Appendix I) The low ability group referred to earlier completed the exercise during normal class time during a special period allocated to the researcher who supervised the exercise with the help of the usual class teachers.

The output of this stage of the exercise was a collection of unique grids, one for each teacher and pupil who responded, consisting of personal elements and personal constructs.

5.4.2 The Second Grid Administration

The purpose of the second grid administration was to provide the pupil and teacher samples with a standard instrument that would allow for the aggregation of individual data and permit comparisons between individuals and groups. The dimensions of these provided grids were the same as those of the earlier personal grids with 12 elements and 20 constructs. The basis for the selection of the elements and constructs for the provided grids is explained in Chapter 6 (see 6.2.1 and 6.2.2) and an example of a provided grid is shown in Appendix VIII

The 12 elements included Ideal Job (Element $_A$) and 11 further jobs drawn from an analysis of first destinations in employment of leavers from the two schools over the last five years or so. The 20 constructs were made up of a mixture of constructs identified from an analysis of the results of the first grid administration as common to either the pupils or teachers or both. Thus both the elements and constructs used in the provided grid could be shown to be relevant and meaningful to the respondents for whom they were intended.

The actual administration of the provided grids proceeded similarly to that of the first as by this time both samples had gained some experience of completing grids and little explanation was required on the second occasion. All respondents were simply asked to rate on a 7 point scale each element in relation to each construct or vice versa so that a score of between 1 and 7 appeared in every box on the grid. The grids were completed by the pupils again in the morning tutorial period under supervision. In the case of both schools the two headmasters agreed to ensure that the teachers completed the grids as far as possible and the headmaster of Southover School offered to convene a special staff meeting for the grids to be completed. Unfortunately the second grid completion exercise coincided with a further period of disruption in schools, this time arising from a dispute between teachers and the local education authority over the teachers pay claim. The teachers refused to supervise children during the lunch period, to undertake any extra duties, or to attend any meetings or activities after school. This action coupled with a general loss of good will constituted a serious handicap to the research effort and the response rates from the teachers are predictably lower than they would otherwise have been.

The output from the second grid administration was therefore a collection of completed provided grids, one for each teacher and pupil who responded, and it is upon this data that the principal analyses have been performed and upon which the principal studies and conclusions of this research are based. Three other kinds of information about the pupils was also collected. Firstly, information was collected from each pupil concerning their staying at school or leaving intentions. Each pupil was asked to respond to these three statements and their responses recorded on their grids.

(a) I never wanted to stay on at school and shall leave as soon as possible.

(b) I have found it difficult to decide whether or not to stay at school after the 5th year.

(c) I have always wanted to stay on at school after the 5th year and shall do so if possible.

Secondly external examination results were recorded for each pupil as soon as they became available in the summer holiday. Finally, information was collected about which pupils actually left and who returned to school. This information was collected at the beginning of the next school year when the situation was clear beyond a doubt.

5.5 The Methods of Analysis

As soon as all the completed provided grids were received each grid was coded and both the code and the data transferred to computer cards in order that data could be made available for analysis using the Grid Analysis Package. (Slater, 1972).

The first stage of the analysis was to submit each and every grid to individual analysis. This analysis was carried out using the programme INGRID which accepts any number of grids in sequence each being introduced by a format card and pilot card giving the specification for each grid. INGRID provides a very substantial output of results for each grid. The preliminary results include a breakdown of the total variation recorded construct by construct showing the percentage variation attributable to each construct in turn from constructs 1-20. If there is any construct in the grid where every element has been rated at the same point on the scale this construct is discarded. The original grid is then replaced by a grid of deviations from construct means which is not printed out but which becomes the foundation for all future calculations. The preliminary results continue with a table of correlations and angular distances between the constructs. The sums of squares for the entries referring to each element are then calculated and listed both as cumulative totals for each element and as percentages of variation attributable to each element. This table provides for the elements information similar to that provided for the constructs in the first table. The next table shows the distances between the elements expressed as a proportion of the unit of expected distance which is defined as the distance between any two elements drawn from a construct system at random.

(See Slater, 1972 p.7). The preliminary analysis concludes with a table of sums of products for the elements although this is of little interest for interpreting the grid. Following the preliminary results listed above the programe concludes with a principal components analysis. This analysis provides a common co-ordinate system for the two dispersions of elements located in a space defined by the constructs and of constructs in a space defined by the elements. The principal components analysis provides an ordered series of the axes of variation from largest to least each component accounting for an independent part of the total variable recorded. The element and construct loadings for each component are listed in a further table.

The first stage of the analysis thus provides a complete analysis of each individual grid for every respondent for use as necessary, later in the research process bearing in mind that data concerning first destinations in employment and also concerning whether pupils left or stayed on at school was not available until sometime after it was necessary to begin the analysis. It was therefore impossible to know from the beginning of the analysis which grids would ultimately be required. The effort was worthwhile also in that all analyses to be performed on the data, whichever programme is used from the Grid Analysis Package, require that the grids are available in a form suitable for analysis by INGRID. Carrying out an analysis by INGRID therefore not only produces the results necessary for some of the investigations to be carried out later but also provided a check to ensure that the decks of cards for each grid were correctly assembled. Of course the main purpose of the exercise was that it provided the means by which the construction and evaluation of the job titles could be explored for every individual in the research samples.

The second stage of the analysis could not be carried out until the data on which pupils left or stayed at school became available because this information determined how the pupil respondents were to be grouped together for further analysis. After this information became available respondents were sorted into groups. In each school the teachers formed one group and the pupils who had indicated either that they intended to stay at school, leave, or were uncertain, formed three further groups. Pupils who left and those who stayed at school provided two more groups making six groups in total for both schools. An important part of the research was to explore how these various groups differed in their construction and evaluation of the job titles. Once respondents have been assigned to the various groups decks of cards were collected together in groups, one for each respondent, and submitted for analysis by SERIES.

Where all the grids in a group are aligned by construct and by element SERIES can be used which combines all the grids in the group and extracts a mean or concensus grid from them which is printed out on file. The output of the program begins with a table showing for all the constructs individually, one at a time, details of the general mean, the means for each individual grid for that construct expressed and as deviations from the general mean, and the means of each element expressed as deviation from the general mean. The matrix formed by assembling these latter deviations for all the constructs becomes the consensus grid. The output for the construct concludes with a summary of the results from the analysis of variance showing the total variation attributable to differences between occasions (i.e. respondents) the total variation attributable to differences between elements and the total due to occasion/element interactions.

The analysis of the twelve groups of respondents by SERIES thus produced a concensus grid on file for each group and also output for each group as described above. The next stage in the analysis was to edit the concensus grid on file into a form suitable for reading by the INGRID programme so that a complete analysis of each concensus grid could be carried out by INGRID as described earlier. When this process had been completed a full analysis of a further twelve individual grids became available representing an analysis of the individual grid for the typical or average member of each of the groups identified for separate analysis.

The final stage of the analysis involed re-ordering the decks of cards so that instead of being collected together one for each construct per respondent in groups of twenty they were sorted into different piles of constructs, one per construct, with one card from each respondent in every pile. Thus instead of having 419 packs of 20 cards the cards were now in 20 packs of 419 cards. These new decks amount to a very large grids which exceed the dimensions acceptable for analysis by INGRID. However, a modified form of an earlier programme designed to evaluate the preferences of a large number of respondents between a given set of items is also available within the Grid Analysis Package and this program accepts grids with up to 500 cards in the deck. Each deck was therefore submitted for analysis by PREFAN which produces a similar analysis to that provides by INGRID. Obviously the correlations between the constructs are omitted because they would be both far too numerous and in this case of little interest. The purpose of this analysis is to obtain a representation of how the elements are seen by the group as a whole in terms of each construct, one at a time. In simple terms, the output gives a popular view of the elements or job titles attribute by attribute. This procedure concludes the mechanical analysis of data.

CHAPTER SIX

Results

6.1 The First Grid Administration

6.1.1 Element Samples

The purpose of the first grid administration was to elicit personal constructs from the staff and pupil samples from which common constructs could be derived for possible use in a second grid administration. It was necessary for each respondent first to generate a personal element sample from which the personal constructs could then be elicited. Each pupil respondent was asked to write down the title of the job he or she would most like to do and then to write down a further eleven jobs chosen more or less at random but including as great a variety of job titles as possible. Each teacher respondent was asked to write down the name of the job he or she was doing (i.e. Teacher) and afterwards to write down a further eleven jobs, again at random and as varied as possible. Two element samples were then produced, a pupil sample and a teacher sample.

From Northover School 193 grids were obtained from a possible 218 pupil respondents, a response rate of approximately 88%, and from Southover School 164 grids were obtained from a possible 250 respondents, a response rate of approximately 66%. In the case of staff, 24 teachers from Northover School and 42 teachers from Southover School returned completed grids after the first grid administration giving response rates of 30% and 47% respectively. It follows that a total of 357 pupils and 66 teachers responded to the first grid administration and that as each respondent produced 12 job titles the possible total number of job titles for the pupil sample was 4284 and for the teacher sample 792.

In fact the pupil sample produced 214 different job titles and the teacher sample produced 180 different job titles both of which are listed in full in Appendices. It follows that in both the pupil and teacher samples some job titles were referred to by a number of respondents. An analysis of the most commonly referred to job titles is of interest as can be seen from the following tables.

	JOB TITLE	%		JOB TITLE	%
1.	Doctor	44	11.	Cook/Chef	18
2.	Shop Assistant	38	12.	Sales Representative	18
3.	Nurse	33	13.	Plumber	18
4.	Farm Worker	29	14.	Police	18
5.	Accountant	26	15.	Mechanic	18
6.	Lorry Driver	26	16.	Social Worker	17
7.	Dustman	24	17.	Solicitor	17
8.	Bus Driver/Conductor	23	18.	Clerk/Clerical Asst.	15
9.	Electrician	21	19.	Engineer	10
10.	Dentist	18	20.	Postman	10

Table 6.1 Showing the most commonly referred to job titles among the teacher sample. Percentages indicate the percentage of respondents referring to each job title.

In the case of the teacher sample the 20 most commonly referred to job titles account for 42% of the total number of choices.

	JOB TITLE	%		JOB TITLE	%
1.	Teacher	73	11.	Hairdresser	25
2.	Nurse	43	12.	Lorry Driver	22
3.	Police	40	13.	Engineer	19
4.	Doctor	39	14.	Farm Worker	18
5.	Shop Assistant	38	15.	Road Sweeper	17
6.	Dustman	34	16.	Bank Clerk	16
7.	Armed Forces	34	17.	Pilot	16
8.	Factory Worker	33	18.	Vet	16
9.	Secretary	27	19.	Electrician	15
10.	Mechanic	25	20.	Social Worker	15

Table 6.2 Showing the most commonly referred to job titles among the pupil sample. Percentages indicate the percentage of respondents referring to each job title.

In the case of the pupil sample the 20 most commonly referred to job titles account for 49% of the total number of choices.

The similarity between the two lists, teachers and pupils, is remarkable. No less than 12 job titles appear in both lists. Among this group of twelve job titles occur jobs with an extremely well defined public image and high public visibility e.g. Doctor, Nurse, Police, Lorry Driver. Others may appear by virtue of their proximity to everyday life e.g. Shop Assistant, Dustman, Electrician, Mechanic, Clerk, Farm Worker. The appearances of Social Worker and Engineer are more problematic and difficult to interpret. Apart from the 12 job titles common in both pupils and teachers the remaining job titles in the two lists of 20 can be similarly explained. For example the

	JOB TITLE		JOB TITLE
1.	Doctor	7.	Electrician
2.	Shop Assistant	8.	Social Worker
3.	Nurse	9.	Police
4.	Farm Worker	10.	Mechanic
5.	Lorry Driver	11.	Clerk
6.	Dustman	12.	Engineer

Table 6.3 Showing the job titles appearing in both the teachers' and pupils' lists of the 20 most commonly referenced job titles

jobs Accountant and Solicitor appear only in the teachers list and it is likely that these choices derive from experience of life which the pupils cannot share. The remaining job titles are made up of yet more useful everyday jobs e.g. Librarian, Dentist, Sales Representative, Plumber, Cook/Chef, and Postman. The remaining job titles in the pupils' list on the other hand are made up of job titles that carry

a strong public identity e.g. Armed Forces, Factory Work, Secretary, Hairdresser, Road Sweeper, Pilot, Vet. It is difficult to be sure whether the job title Teacher appears in the pupils list because the job of Teacher is a commonly held reference point for pupils when considering employment or whether it appears as a situational artefact of the research sites, namely the schools involved. 73% of pupils referenced the job title Teacher while 43% and 40% referenced Nurse and Police respectively. It seems unlikely that the job title Teacher would appear less frequently than that of Nurse or Police and it may be that the situational factor accounts for only 20% or 30% of the Teacher references.

Clearly the occupational status of the job titles referred to by the teachers and pupils varies and it was thought desirable to examine the status distributions of the element samples employed by the teacher and pupil samples and their samples were later used to elicit personal constructs from teachers and pupils it is of some importance to discover whether the element samples differ importantly between groups of respondents. A further analysis was therefore carried out in which a status category was assigned to every job title. The relative importance of different status categories among and between groups was then determined by calculating the frequency of appearances of job titles of particular status categories for each group. A condensed version of the status groups employed in the Classification of Occupations and Dictionary of Occupational Titles was used (CODOT) and the method by means of which this condensed version was arrived at is explained fully in Appendix VII.

Sample/Group	I	II	III	IV
Northover School-Stayers	55	11	12	22
Northover School-Leavers	43	16	19	22
Southover School-Stayers	61	8	16	15
Southover School-Leavers	43	12	21	24

Table 6.5 Showing the distribution of job titles among the four status groups for Northover and Southover schools, pupils leavers and stayers. Figures given are percentages.

A comparison between the groups who left and those who stayed in both schools reveals differences in the proportions of job titles in the status categories which are in the expected direction. As early leaving has for a long time been associated with lower socioeconomic status and as the element samples of job titles produced by individual pupil respondents must to some extent be related to personal experience it is not surprising to find relatively fewer job titles assigned to status category I recorder by leavers as compared with stayers and correspondingly more job titles assigned to status categories II to IV. It is possible to apply the same argument to explain the difference between the stayers in the two schools with reference to status category I. Northover School has a much higher staying on rate than Southover School and it is therefore likely that there will be more respondents of a lower socio-economic group in the Northover stayers sample than in the Southover stayers sample. In so far as the character of job titles produced by individual pupil respondents is related to personal experience the effect of a higher proportion of respondents of a lower socio economic group would be to reduce the incidence of job titles in the highest status category.

Sample/Group	I	II	III	IV
Pupils-ALL LEAVERS	44	12	20	24
Pupils-ALL STAYERS	58	10	13	19

Table 6.6 Showing the distribution of job titles among the four status groups, Northover and Southovers Schools, all leavers compared with all stayers. Figures given are percentages

A comparison between all the stayers and all the leavers from the two schools indicate that the stayers are operating with an element sample that includes 14% more job titles in status category I and correspondingly fewer in status categories II to IV especially categories III and IV.

An analysis of the occupational aspirations of the various groups was carried out by extracting those jobs that the respondents said they most wished to obtain (first choice job titles) and submitting these to a status category analysis.

Sample/Group	I	II	III	IV
Northover School - Stayers	86	8	2	4
Northover School - Leavers	54	7	22	17
Southover School - Stayers	71	4	18	7
Southover School - Leavers	55	12	21	12

Table 6.7 Showing the distribution of first choice job titles among the four status categories, Northover and Southover Schools, stayers and leavers. Figures given are percentages.

Whilst for the leavers in both schools the first choice job titles show a definite shift towards status category I as compared

with the total element sample of job titles, the first choice job titles of the stayers show a marked shift towards status category I in both schools. Again this shift is in the expected direction. Staying on at school is quite obviously related to high levels of occupational aspiration and the much higher level of occupational aspiration among the stayers at Northover School as compared with those at Southover school is entirely in keeping with everything that is known about these two schools. What is most interesting about these figures is the extent to which the figures for the leavers are at variance with the figures for the actual labour market which school leavers from both schools custom r ly enter. An analysis of the first destinations in employment of 845 school leavers from both schools over a period of three previous years was undertaken and unfortunately the destinations of 205 school leavers could not be traced. However the first destinations of 640 school leavers were capable of analysis and a status category was assigned to each job that appeared in this analysis. The table below shows the distribution within status categories of the actual jobs that were available to school leavers from both schools during this period.

Sample/Group	I	II	III	IV
Actual Labour Market	28	6	24	42

Table 6.8 Showing the distribution of the jobs available in the labour market within the status categories.

It does seem from the above analysis that those that stay at school relatistically anticipated the labour market into which they will shortly move while the number of thost that leave are required to make a rapid adjustment if their aspirations are to become conterminous with their experience. The main feature of this analysis is that the occupational aspirations of the leavers presuppose twice as many jobs in status category I as actually exist in the labour market and that twice as many school leavers enter the lowest occupational status category as envisage doing so.

6.1.2 Construct Samples

Personal constructs were elicited by each respondent individually using the triadic method. Thus the 357 pupils from both schools produced a total number of 219 constructs although each school taken separately produced only 181 (Northover School) and 182 (Southover School) constructs respectively. In the teacher samples Northover School teachers (n= 24) produced 111 personal cons tructs and Southover School teachers (n = 42) produced 170 personal constructs. The total number of constructs produced by all the teachers was 215. Both construct samples are listed in full in Appendices.

Although almost all the teachers managed to elicit the maximum number of personal constructs i.e. 20 there was considerable variation in the number of constructs produced by individuals in the pupil sample. This is partly explained by the fact that not all pupils arrived at their tutorial period at the same time in the morning,

many arriving late habitually on account of transport difficulties. Generally speaking absence from parts of the grid exercise was recorded and it is therefore possible to analyse the variation in number of constructs produced by those pupils who were present for the whole of the grid administration. The number of constructs produced by pupils varied from 20, the maximum possible number, to as little as 5 in both schools. This variation may also be partly explained by the varying effectiveness of supervision during the morning tutorial period and by different levels of commitment among individual staff and pupils to the satisfactory completion of the exercise. On the other hand people do vary with regard to the number of personal constructs held in relation to a set of objects and with regard to their facility in eliciting them. Some require more time and more careful and supportive elicitation than others and in a mass individual elicitation exercise such as this considerable variation is to be expected. Of interest in this connection is the matter of whether the exercise was more difficult to perform for the less able pupils. The pupils were divided into different levels of academic ability on a 4 point scale and the average number of constructs produced by the different ability groups calculated. The following table shows (a) that the ability to generate personal constructs does not depend on academic ability and (b) that on average pupils had difficulty in generating more than 12 or 13 personal constructs.

SCHOOL	1	2	3	4
Northover School	12	13	13	13
Southover School	14	13	14	12

Table 6.9 Showing the average number of constructs generated by individual pupils in both schools in relation to academic ability

The number of pupils generating the maximum of 20 constructs varied more widely as the following table indicates.

SCHOOL	1	2	3	4
Northover School	12	10	0	7
Southover School	30	21	33	14

Table 6.10 Showing the number of pupils from each school producing the maximum number of 20 personal constructs in relation to academic ability

Although attempts have been made to produce criteria by which large numbers of constructs can be grouped together and analysed Landfield (1971) no widely applicable method of so doing has been found during the course of this study. The principle interest for the purposes of the present study is the extent to which a particular construct is commonly held by the

population under consideration. Although a precise measurement of the popularity of particular constructs has not been attempted, a simple frequency tally leads inevitably to the conclusion that some constructs are more widely held than others. This phenomenon was recognised by Kelly who described such constructs as common constructs. A list of the 20 most commonly occuring constructs in the pupils' and teachers' samples is of interest.

	PUPILS	%	TEACHERS	%
1.	Outside/inside	72	Outside/inside	53
2.	Dirty	39	Dirty	45
3.	Helping people	33	Manual	38
4.	Working with people	32	Creative	33
5.	Skilled	26	Academic study	30
6.	High pay	23	Long training	30
7.	Uniform	23	High/Low pay	29
8.	High qualifications	21	Skilled/Unskilled	27
9.	Special training needed	20	High/low qualifications	27
10.	Office work	20	Working with people	26
11.	Working with machinery	19	Helping others	24
12.	Working with hands	18	Meets the public	24
13.	Travel involved	18	Professional quals. needed	24
14.	Boring/Interesting	15	Physical	23
15.	Public service	15	High status	21
16.	Hard physically	15	Personal contact	18
17.	Exam. quals. needed	15	Mathematical	18
18.	Medical	13	Manual skill	18
19.	Manual	12	Self employed	18
20.	Meet people	11	Monotonous	18

Table 6.11 Showing the 20 most commonly elicited constructs in the pupils' and teachers' samples from Northover and Southover schools. The figures indicate the percentage of each sample referring to a particular construct.

Among the 'top 20' most frequently occuring no less than 13 constructs are common to both the pupils and teachers samples. They are:

1. Outside/inside
2. Dirty
3. Helping people
4. Working with people
5. Skilled
6. High pay
7. High qualifications
8. Special training needed
9. Boring/interesting
10. Hard physically
11. Examination qualifications needed
12. Manual
13. Meet people

The remaining constructs in the pupils sample are ..... uniform, office work, working with machinery, working with hands, travel, public service, and medical. These mostly refer to simple characteristics of the jobs. Although the remaining constructs in the teachers sample include constructs that similarly reflect job characteristics e.g. self employed, manual skill, mathematical and personal contacts, they also include constructs that are qualitatively different e.g. creative, academic study, and high status. It is worth noting that both creativity and academic study are placed fourth and fifth in terms of popularity among the teachers and are shared by at least one in three of the teachers. Such differences in the construction of objects drawn from the world of work are likely to be of some importance not only because they suggest that teachers and pupils 'view' the same employment opportunities differently but because teachers may be seen as important adult models by pupils and because they have a responsibility for advising and guiding them.

If a further analysis of the "top 10" most popular constructs is undertaken interesting and possibly important differences of priority emerge between both the staff and pupils in the two schools concerned. Whilst the percentages given can only be regarded as an indication of the degree to which constructs are commonly held within particular groups it would be surprising if this data was devoid of psychologically relevant information. On the contrary we are surely entitled to suggest that the occurrence of a particular common construct in one group but not in another or the superior priority accorded to a construct by one group over that of

another indicates likely differences in the constructions of the psychological objects, in this case the job titles, by the groups concerned.

Northover School Pupils	%	Southover School Pupils	%
1. Outside/inside	76	Outside/inside	68
2. Working with people	36	Dirty	53
3. Skilled	28	Helping people	46
4. Dirty	28	Working with people	27
5. Uniform	25	High pay	26
6. Special training needed	25	High qualifications	24
7. Helping people	21	Working with hands	24
8. High pay	21	Skilled	22
9. Working with machinery	19	Office work	22
10. Travel	18	Uniform	19

Table 6.12 showing the 'top 10' most popular constructs among Northover and Southover School pupils. Figures given are the percentages of each group referring to each construct.

Within the 'top 10' most popular constructs in the pupils' samples from Northover and Southover schools 7 constructs are common to both lists i.e. outside, working with people, skilled, dirty, uniform, helping people and high pay. To this extent the two groups construe the objects similarly although these common constructs may still have different saliences for different individuals and may be applied to the objects idiosyncratically. In the case of Northover School the remaining constructs after extraction of the common constructs are.... special training, working with machines and travel. In the case of Southover School the

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remaining constructs are ..... high qualifications, working with hands, and office work. If the common constructs can be regarded as indicating similarity of construction between groups then the constructs specific to particular groups must be regarded as indicating a tendency towards different constructions of the same objects in the groups concerned. The specific constructs evident in the Northover School sample may be taken as an indication of a tendency to evaluate the job titles in terms of the extent to which special training and the use of machinery is involved while the specific constructs evident in the Southover School sample indicate an evaluation of the job titles in terms of high qualifications, manual work, and location in an office. It is of particular interest that high qualifications are apparently a more relevant consideration in evaluating the job titles for the pupils of Southover School than they are for the Northover School as it is the pupils of Southover School who will experience most difficulty in achieving high qualifications. Similarly the pupils of Northover School are apparently more attuned to the ideas of training and working with machinery than Southover School pupils for whom working with the hands is a more relevant consideration. Also the pupils of Southover School apparently regard high pay more importantly than the pupils of Northover school who we know from history are going to find their early employment more intrinsically rewarding than their Southover peers who may understandably seek extrinsic reward in order to compensate for their relatively poorer employment opportunities.

The constructs common to both pupils' groups indicate a concern with basics such as whether the job is indoors or outside in the open and whether the work involved is dirty or not. Immediately next come the people orientated constructs, working with and helping other people. The people orientated constructs may well be a product of the school socialising process through which all schools consistently strive by a variety of means to inoculate into their pupils a sensitivity to and concern about the welfare of others in the community. Next come other attributes of the jobs such as skill level, training, qualifications, and pay.

An examination of the similarities and differences between the teachers from both schools is also rewarding. All the constructs in the 'top 10' most popular constructs among the teachers are shared by at least a quarter of the sample, probably more as we have no means of knowing whether the elicitation procedure employed by individuals ensured the maximum elicitation of any particular construct.

	Northover Staff	%	Southover Staff	%
1.	High qualifications	68	Outside/inside	64
2.	Dirty	53	Dirty	48
3.	Outside/inside	46	Creative	38
4.	Manual	27	Manual	38
5.	High/low pay	26	Long training	33
6.	Creative	24	Academic	31
7.	Helping others	24	Working with people	29
8.	Long training	22	High/Low pay	26
9.	Self employed	22	Professional Quals. needed	26
10.	Physical	19	Physical	26

Table 6.13 Showing the 'top 10' most popular constructs among the Northover and Southover School pupils. Figures given are the percentages of each group referring to each construct.

The most striking difference between the two teachers' lists is the occurrence of high qualifications at the top of the list in the case of Northover School and the non-appearance of this construct in the Southover School list. It has already been established that the staff of Northover school are very much preoccupied with academic qualifications not only by virtue of their former grammar school traditions but because they perceive themselves as operating in an environment in which the expectation of academic success is high. This is not so at Southover school where neither experience nor expectations point to high qualifications as of central relevance. The occurrence of creativity high on the list of Southover school is similarly of considerable interest as it would be understandable if a school for which high qualifications was an unrealistic aim and viewed creativity and self expression as of greater importance. Here, as in the pupil samples absolutely basic job characteristics such as whether the job involves working in or out of doors, whether it involves getting dirty or not and whether jobs are manual or non manual appear high on the list. Next came considerations such as creativity, training, and pay and, afterwards, the people orientated constructs, working with and helping other people.

It is extremely difficult to interpret these results. Construct psychology is being increasingly applied to an even widening spectrum of clinical and research interests. However the lack of studies in the area covered by this enquiry and consequent lack of reference points for comparison inevitably make the

'constructions' placed upon the data recorded so far in this study seem speculative. Nevertheless the experience of many years of close personal contact with teachers and pupils enable the writer to make an informed judgement of the authenticity of the material obtained in this enquiry. Schools do vary one from another in terms of objectives and atmosphere sometimes called 'ethos'. How is such variety in schools to be explained and where is it to be found if not in the personal and group psychology of school members. It is a debatable point whether an academic success orientated school mysteriously selects teachers predisposed towards an academic success view of education or whether a school for which academic success is unrealistic selects teachers predisposed towards creativity and self expression. It may be that teachers recruited to their schools gradually come to construe the ethos of the schools they join and adapt their psychology and behaviour accordingly. Virtually nothing is known about how pupils acquire their constructs. Kelly has argued that events are anticipated in terms of their replications for which a construct system becomes progressively elaborated and modified by experience. But the school pupils experience of employment is in the future and the means through which pupils acquire construct systems in advance of experience by means of which they later anticipate events is clearly of profound importance. Unfortunately the search for answers to this profound question is beyond the immediate scope of this study.

6.2 The Second Grid Administration

6.2.1 The Selection of the Elements

The production of personal grids is, of course, worthwhile in itself. For example it enabled a psychologist or counsellor to begin to gain access to and chart part of the private world of a patient or client. The grid preparation procedure and the finished grid may also be, in Kelly's own words, "a means to dialogue" with the patient or client. For experimental purposes however it is often necessary not so much to elicit meaningful elements and constructs with subjects but to ask them to address themselves to supplied elements and constructs which are related to the puposes of the experiment. A good deal has been written about the use of personal as opposed to provided elements and constructs and much of what has been written implies that provided material for subjects in grid form is inherently unsatisfactory because it is unlikely to be personal and hence meaningful to the subjects. This objection can largely be overcome if the elements and constructs selected for use in an experiment can be shown commonly to exist either in the groups for which the experiment is intended or in a comparable group. The former procedure has been adopted here and has already been described above in the sections concerning personal grids. Another important point is that a construct may be regarded as meaningful to a subject if he can use it satisfactorily, i.e. is able to employ it discriminatively over a range of objects for which the construct is intended, even though the construct may not in the first place have been elicited from the subject. Finally, in the case of the present study the question of whether or not some groups are able to apply particular constructs entered in the grid is one of the objectives of the study.

The dimensions of the provided grid are the same as those of the earlier personal grids with 12 elements and 20 constructs. Two criteria were used for the selection of the elements. The first relates to the concept of an ideal or most preferred job. It was thought important to explore the extent to which individuals and groups were able to define in advance an ideal or most preferred job however hypothetical this may be. Not only is this of interest in its own right but it also enables us to compare the evaluations of the other jobs in the element sample with the evaluation of an ideal job. The second criterion relates to the selection of the other 11 elements and here it was felt that the basis of selection should be that the jobs chosen fairly represent the spectrum of opportunities in the actual labour market into which the school leavers were due to move. To this end a thorough an analyses as possible of the first destinations of previous school leavers over the previous threeyears was carried out using the records held by the appropriate local authority careers office. There is, unfortunately, a number of reasons why these records are incomplete and even where records exist essential information may be missing. In all, the first destination of 845 school leavers were sought of which 205 (24%) were found to be unknown. Working on the basis of the known first destinations of the remaining 76% however it was possible to arrive at a picture of the local labour market that was not in any way at variance with the experienced knowledge of local officers working in this field. There seemed to be little doubt that the main employment opportunities for school leavers in this area during this period were:

1. Shop worker
2. Engineering craft apprentice
3. Hairdresser Apprentice
4. Factory worker
5. Office junior
6. Clerical trainee
7. Armed forces
8. Nurse
9. Builders labourer
10. Fam worker
11. Warehouse assistant

It is worth emphasising that in addition to being locally relevant these jobs with the exception of one occured among the most commonly referred to jobs in the pupils' sample. The jobs nurse, shop assistant, armed forces, and factory worker occured in the top 10. These and the following jobs hairdresser, engineer and farm worker occured in the top 15 and all these together with clerical assistant, builder and officer worker occured in the top 30 i.e. in the top 10%. Only the job of warehouse assistant did not occur in the list of jobs produced by the pupils. We may therefore take it that the sample of jobs entered into the provided grid were both relevant to the locality and relevant to the pupils.

6.2.1 The Selection of the Constructs in the Provided Grid

The method by which samples of personal constructs were collected from the samples of teachers and pupils have been described earlier and the results of the analysis carried out on these samples set out in section 7.2. 20 constructs from this analysis

were extracted for inclusion in the provided grid. Again, two criteria were applied to the selection of these 20 constructs. The first was that, as far as possible, constructs found to be common to both the teachers and pupils should be used so that the provided grid was assembled in such a way that it should be meaningful to the large majority of teachers and pupils in the samples who would respond to it. The second criterion concerns the research interest into whether or not the pupils are able successfully to apply important constructs employed by teachers. The latter would obviously be teachers sample but not necessarily of such high priority in the pupils' samples although they may also be common to some extent in the pupils' samples. On these criteria two groups of constructs were selected for inclusion in the provided grid. 9 constructs were selected on the grounds that they were of high priority to the pupils and common though mostly lower priority to the teachers they were:

1. Dirty
2. Manual
3. Skilled
4. High pay
5. High qualifications
6. Special training
7. Helping people
8. Inside/Outside
9. Working with people.

Another 2 were selected on being of high priority to the pupils but although common to the teachers' samples of considerably lower priority. They were:

1. Working with machinery
2. Boring/interesting.

The remaining 9 were selected on the grounds that they were of high priority in the teachers' samples but of lower priority in the pupils' samples although common to them with the exception of the construct 'End Product' which did not occur at all in the pupils' samples. They were:

1. Creative
2. Academic
3. Selling
4. Professional
5. High status
6. Physical
7. Concerned with end product
8. Mathematical
9. Personal contact

The final form of the provided grid can be seen in the example given which is located in Appendix VIII. Respondents were asked to rate on a 7 point scale each element in relation to each construct or vice versa so that a score appeared in every box on the grid.

From Northover School 162 completed provided grids were obtained from a possible 218 pupils giving a response rate of 74%. From Southover School 179 completed provided grids were obtained from a possible 250 pupils giving a response rate of 56%. From Northover School teachers 44 completed provided grids were obtained from a possible 80 teachers giving a response rate of 55% and from Southover School 34 completed provided grids were obtained from a possible 90 teachers giving a response rate of approximately 38%. It follows that a total of 341 grids were collected from pupils with an overall response rate of 72% and 78 grids were collected from teachers giving an overall response rate of 46%.

6.2.3 The Confirmation of Occupational Aspiration among the School Leavers

Out of an original pupil sample of 468 pupils in their last year of compulsory schooling at Northover and Southover schools it was found that a total of 246 pupils left school and obtained some form of employment, work experience, or further education. The numbers for each school are given below.

School	No. of pupils in final year of compulsory schooling	Leavers	Leavers as a %
Northover	218	94	43
Southover	250	152	61
TOTAL	468	246	53

Table 6.14

Of these leavers 88 pupils had said earlier that they wished to obtain jobs whose titles appeared in the element sample of the provided grid. This data was included in the personal grids in which pupils were asked to write down the job they most wanted to obtain in the column of Element A and this group therefore represents approximately 36% of all the leavers. The numbers for each school are also given.

School	No. of leavers	No. of leavers wishing to obtain jobs included in the grid	%
Northover	94	35	37
Southover	152	53	35
TOTAL	246	88	36

Table 6.15

This sample of 88 school leavers, the 36% of leavers who said they wished to obtain jobs included in the element sample of the grid was used to test the performance of the grid in the following way.

Each respondent in the sample completed on his or her own a provided grid in which he or she recorded 240 independent scores on a 7 point scale in each of the boxes. The extent to which these scores differ from random arrays of numbers in the extent of the psychological meaning in each grid. An analysis of each grid was carried out using the INGRID computer programme described in detail earlier. In the analysis a second grid, a grid of deviations, is obtained from the first and this table of deviation also has a column for every element and a row for every construct. As Slater explains (Slater 1972).

> "In terms of Cartesian Geometry the column of entries for an element gives its location in a space where there is an axis for every construct, so the complete table defines the dispersion of the elements as a scatter of m points in the construct space which has n dimensions".

Slater also explains elsewhere how elements spread out how in construct systems according to their importance to the respondent, the less important remaining close to the centre and the more important spreading further away according to the sizes of the square roots of their sums of squares.

"The sums of squares for different elements may vary widely. A small sum of squares implies that the informants attitude towards the element is indifferent: he has rated it neither high or low but near the mean on all constructs. Conversely if the sum of squares is large the element must be an important one in the subject's construct system----"

(Slater, 1972)

Once the idea of a dispersion of elements within the construct space has been grasped it becomes possible to consider not only the distances of elements from the centre but also their distance from each other. INGRID usefully calculates the distances between all possible pairs of elements and expresses these distances proportionately to what it calls the Unit of Expected Distance which is the distance between any two elements drawn at random. The analysis thus provides a standardised scale for measuring the distance from one element to another.

Tables of distances between elements were obtained for each of the 88 pupil respondents in the special sample we are considering and clearly, if the grids have recorded psychologically meaningful information from each respondent we shall expect the distribution of elements in each construct system to vary in a way which reflects the unique individuality of each respondent. For example Element A in each grid refers to Ideal Job and the proximity of the other elements to Element A has been precisely measured.

It is therefore possible to determine which element or job title comes closest to Element A, Ideal Job, for each of the 88 respondents and it may be assumed that if the grids are eliciting valid psychological information from respondents there will be a high correspondence between the job title that each respondent has stated in advance he wishes to obtain and the proximity of that job title or element in the provided grid to Ideal Job or Element A. The nearest element to element 1 was extracted from the element distance tables for each of the 88 grids in this special sample and these job titles compared with the most preferred job titles entered into the personal grids during the first grid administration. It was found that if only the closest element to Element A was taken in each provided grid there was a 67% correspondence with the most preferred job titles taken from the earlier personal grids. If the closest two elements to element 1 were taken the correspondence rose 81% and for those elements closest to Element A to 83%.

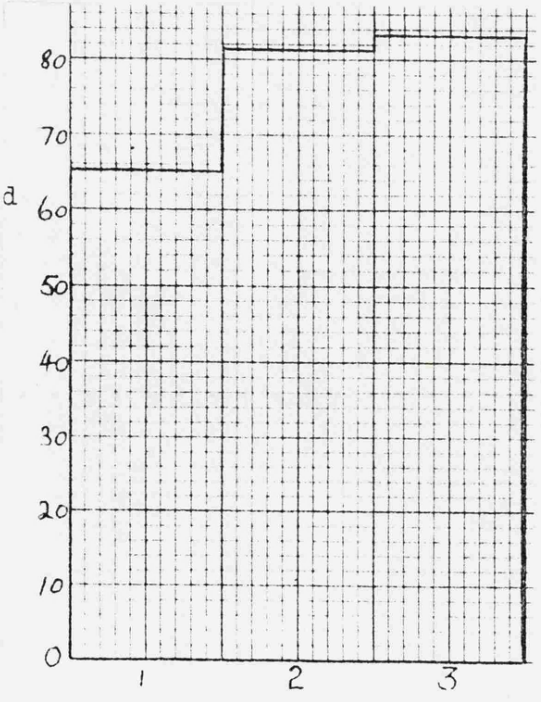

Table 6.16 Number of elements closest to Element A in the Provided Grids

This information is shown graphically in the diagram above. The correspondence is very high and raises a number of issues. The first is that it is clear that the provided grid is an extremely sharp and useful tool. The fact that more than one element or job title clusters next to Element A, Ideal Job, should not be surprising. The grid has to all intents and purposes confirmed the occupational aspirations of between 67% and 83% of the sample. Secondly these results indicate consistency on the part of the pupils for whom there was a gap of several weeks between the two grid administrations. Thirdly, in those 14% to 16% of cases where the preferred job is not the closest to the ideal job but the second or third closest in the tables of inter-element distances the job that almost invariably is rated closest to the ideal job is that of Nurse, i.e. Element G. There is something extraordinary about this occurence that is hard to explain except to add that apparently, for some school leavers, the job of Nurse may be regarded as a kind of prototypic ideal job even though they have no wish to become nurses.

6.2.4 The Prediction of First Employment Destinations among the School Leavers

Information was also collected concerning the first destinations in employment of the leavers from both schools and it was found that 49 of the leavers from Northover School (52%) and 88 from Southover School (58%) obtained jobs that were included in the element sample of the provided grids. Using exactly the same

methods of analysis as was employed in the confirmation of occupational asperation test described in section 7.4.3. it was possible to extract the element closest to Element A in the construct space of each individual pupil and hence to discover which of the job titles was evaluated as closest to the ideal job in each case. It was expected that where the first destination job of a school leaver appeared in the element sample of the provided grid then that job would tend to be evaluated as closest to the ideal job.

137 grids were therefore analysed, 49 from Northover School and 88 from Southover School, representing 56% of the leavers from both schools. The results are as follows.

If only the closest element to Element A is extracted and compared with the actual first destinations of the leavers then 45% of the first destinations are predicted by the grids. If the nearest two elements to Element A are taken then 56% of first destinations are predicted by the grids and if the nearest three elements to Element A are taken then 65% of first destinations are predicted by the grids. These results are shown in the form of a histogram below.

%

Correspondence between closest job to Ideal Job in the Provided Grids compared with first destinations in employment jobs

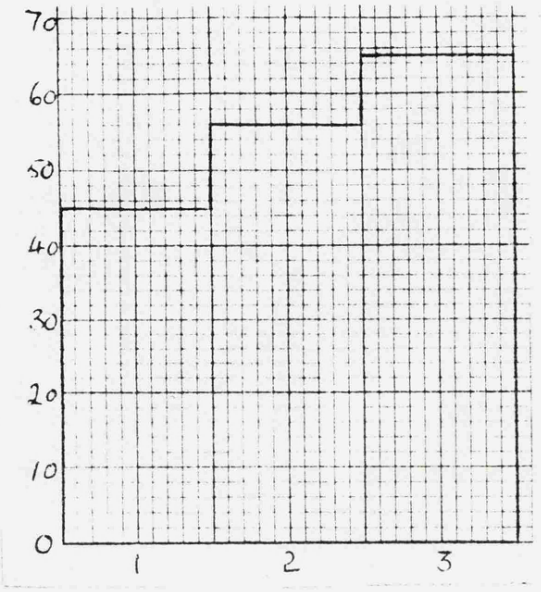

Table 6.17

Number of elements closest to Element A in the Provided Grids

It is permissible to consider the two or three closest elements to Element A because it is not at all unusual to find elements grouped together in clusters. All the composite diagrams used as illustrations in this thesis show this. The results are rather remarkable in that the provided grid is very much a compromise. It is based on selected common pupil constructs and includes constructs popularly common to teachers rather than to pupils. This grid is not tailored to the needs of particular individuals and therefore the most that can be hoped for is that it will have a dipstick effect. It will touch parts of the

construct systems of a large number of individuals but will not fully reflect the individual complexity of any particular construct system. Even though, on this dipstick basis, the grid is able to diagnose the occupational aspirations of no less than 83% of subjects for whom it is supplied and is able to predict the jobs that individuals will actually obtain in two out of every three cases in which it is used.

6.2.5 The Definition of an Ideal Job

It has already been explained that if we consider the dispersion of a number of elements in a space which is defined by the axes of a number of constructs then the degree to which elements are spread out is a function of the sizes of their sums of squares which is in turn a function of the amount of variation recorded in relation to particular elements in terms of the constructs taken as a whole. It may be safely assumed that if an element is rated cautiously around the central point of the scales of each of the constructs there will be relatively little variation recorded and such elements will cluster near the central point of the construct system. Conversely if an element is rated over the whole spectrum of the construct scales the deviations from the mean together with the sums of square will be relatively larger and such elements will be well dispersed along the major axes of the construct system. In the former case we can say that a respondent has not been able to apply the scales discriminatively to the elements and in the latter case we can say that the respondent has effectively utilised the construct scales in discriminating between the elements. In plain language we are

talking about the meaningfulness to the respondent of the elements in terms of the constructs and vice versa. There is no need to determine the major axes of each construct system nor to plot the loadings of the elements and constructs graphically to discover the relative meanings of the constructs and elements to a particular respondent as this information becomes apparent as soon as the variation that attaches to the constructs and elements is calculated. The output of INGRID, as has been described earlier, in fact includes tables of variation attributable to the constructs and elements and express the variation attributable to each construct and each element in turn as a percentage of the total variation recorded. It is thus possible to determine the saliences of all the constructs and elements for individuals or groups and this is especially useful in a study where a particular construct or element is of special interest.

The confirmation of occupational aspiration and prediction of first destinations in employment first described in the previous two sections depend entirely on the ability of the respondents to define an ideal job in terms of the constructs supplied. Ideal job is the first element in the provided grid. Although, as has been indicated by the results described, both the respondents and the grid's performances can be successfully validated by comparing their results with other information concerning the occupational aspirations and destinations of the respondents, nevertheless the extent to which individuals are able to define a hypothetical ideal job is of some importance and therefore a matter for enquiry in this research.

One of the advantages of collecting data from respondents using identical grids is that where a number of grids are aligned by column and by row and refer to the same elements and constructs it is possible to combine them using the programme SERIES which centres each grid by construct and produces a consensus or mean grid. This consensus grid can then be analysed using the INGRID programme in the normal way. The output of this analysis informs us how an average member of a group has evaluated the elements and constructs.

Information was collected from each school that enabled the respondents to be allocated to one of six groups. The first group included all teachers. The pupils were divided into those who stayed and those who left i.e. groups 2 and 3. The pupils were also divided according to whether their intention was to stay or leave or whether they were uncertain which they would do when their period of compulsory schooling came to an end. i.e. groups 4, 5 and 6. This excerise was carried out for both schools and therefore produced 12 groups in all. The grids of those allocated to each group were combined using the programme SERIES and the resulting consensus grids analysed using INGRID. The percentage variation attributable to each of the elements was then extracted from the appropriate tables in the INGRID output for each of the group consensus grids and entered into the following table.

GROUP	ELEMENTS											
	A	B	C	D	E	F	G	H	I	J	K	L
1. Northover Teachers (n=44)	22	9	6	8	2	5	12	8	8	6	8	6
2. Northover Stayers (n=72)	16	12	6	5	5	7	11	11	7	6	8	6
3. Northover Leavers (n=90)	9	12	6	8	5	7	12	10	6	6	9	8
4. Northover Stay (n=39)	19	11	6	5	5	7	10	11	7	5	8	5
5. Northover Leave (n=55)	6	13	6	9	4	6	12	11	7	6	9	10
6. Northover Uncertain (n=68)	9	12	6	7	6	7	12	10	6	7	9	7
7. Southover Teachers (n=34)	18	9	4	9	4	5	12	8	9	6	9	6
8. Southover Stayers (n=27)	11	12	6	5	5	5	13	13	7	6	7	7
9. Southover Leavers (n=152)	4	13	7	8	7	7	14	11	6	6	8	8
10. Southover Stay (n=28)	10	11	7	6	5	6	14	11	7	6	8	7
11. Southover Leave (n=81)	3	13	6	9	7	6	14	11	5	6	9	9
12. Southover Uncertain (n=70)	6	13	7	7	6	8	14	11	7	6	7	7

Table 6.18 Showing the % variation attributable to each element recorded by groups of teachers and pupils from Northover and Southover Schools

The table shows clearly that for the teachers groups in both schools Element A Ideal Job, was outstandingly the most salient element accounting for more than a fifth of the total variation recorded in the case of Northover School. Element A was also the most salient element for those who stayed at Northover School accounting for 16% of total variation although for those who stayed at Southover School Shop Work, Nursing, and Unskilled Factory Work were slightly more salient. For those who left Northover and Southover Schools Element A accounted for only 9% and 4%

of the variation respectively and in the case of Northover School was less salient than Shop Work, Nursing, Unskilled Factory Work and of the same salience as Farm Work. For Southover School leavers Element A was less salient than all the other Elements.

If the salience of the elements is examined among those whose intention was to leave or to stay a similar pattern emerges. In both schools those who intended to remain at school (groups 4 and 10) recorded 19% and 10% of variation attributable to Element A and those whose intention was to leave (groups 5 and 11) recorded only 6% and 3% respectively. Thus in both schools Element A was more than three times as salient among those whose intention was to stay as it was among those whose intention was to leave. It is of interest that those who were uncertain about leaving or staying in both schools recorded percentages that lie between those of the intended leavers and intended stayers.

The salience of some of theother elements in the grid is also of interest. For example, in all groups with the exception of both groups of teachers, the group of those who stayed at Northover School and of those who intended to stay, Element G , Nurse is the most salient element followed closely by elements B and H, Shop Work and Factory Unskilled. It is not possible to determine at this stage whether the evaluation of these elements by these groups in terms of the constructs is wholly favourable, unfavourable, or partly favourable and unfavourable and this is not really the point. The point is that it can be stated with some assurance that Elements B, G and H are the most important elements in the construct systems of the groups concerned and are therefore the most prominent reference points by means of which these groups construe the employment opportunities open to school leavers in

this particular labour market. This is also true for the teachers of both schools and for the stayers at Northover School except that these groups have an additional and even more important reference point in their construct systems, i.e. Element A, Ideal Job. In plain language these last three groups have a well developed concept of what they are looking for in employment and it is this that distinguishes them from the other groups. Finally, the salience of Element D, Engineering Craft Apprentice deserves comment. This is one of the most important jobs in this particular labour market and the shortage of appropriately qualified, motivated, and available manpower at all levels of entry to engineering has become a matter of national concern. It is interesting to note in this context that Element D, Engineering Craft Apprentice, is for most groups of similar salience to the Elements F, I and K, Hairdresser Apprentice, Builder's Labourer, and Farm Worker. It seems that concern expressed within the engineering industry about the image of engineering may be justified given the relatively low salience of engineering in the construct systems ofthose who participated in this study. The possible significance of the findings put forward in this section is discussed later in the thesis.

6.2.6 The Evaluation of the Elements by Construct

The previous section was concerned with the evaluation of particular elements by particular groups over the constructs taken as a whole and the saliences of particular elements for particular groups was explored. This section is concerned with the evaluation of particular elements in terms of particular constructs(firstly)by all the respondents, teachers and pupils.(and then by the different groups of respondents identified in the previous section.)

It was stated in section 7.4.2. that 341 provided grids were collected from the pupils in both schools and 78 from the teachers in both schools giving a total sample of 419 provided grids, each with 12 elements and 20 constructs. For computer analysis data from each grid was punched onto data cards. By a simple rearrangement of the order of cards it was possible to group the cards by construct rather than by respondent. Thus, instead of 419 sets of cards each containing 20 cards, one for each construct, and with each card containing 12 units of data, the rearranged cards contained 20 sets of cards with 419 cards in each set and with each card containing 12 units of data as before. The effect was one of producing 20 supergrids with 12 elements and 419 rows, one for each respondent, from the original 419 ordinary grids with 12 elements and 20 rows, one for each construct. An analysis of these 20 supergrids refers to the evaluation of the elements by the total sample of respondents in terms of each construct separately. This analysis is of interest in so far as it gives a mass or popular view of the elements construct by construct. The extent to which this popular view accords with common sense is a further measure of the validity of the instrument and associated procedures.

The dimensions of the 20 supergirds, 12 columns by 419 rows, exceed the limits acceptable for analysis by INGRID. However another programme in the Grid Analysis Package, PREFAN, has larger limits and accepts grids up to 40 columns by 500 rows. This is a modification of an earlier programme designed to evaluate the preferences of a large number of respondents between a given set of items. The analytical procedures are similar to those of INGRID and the result of submitting the supergrids for analysis by PREFAN is in all important respects

identical to the output of INGRID. Then the output of the seperate analysis of each supergrid includes a table showing the percentage variation attributable to each element in relation to a particular construct recorded by all the respondents. Data from this table was extracted from the analysis of each supergrid and combined together for all 20 constructs. The resulting table is given below.

CONSTRUCTS	ELEMENTS											
	A	B	C	D	E	F	G	H	I	J	K	L
1.Dirty	10.4	5.3	12.3	6.6	4.4	5.2	6.6	5.6	12.2	10.8	17.1	2.8
2.Working - People	9.9	9.4	5.6	5.3	7.2	8.7	12.2	5.7	4.8	5.1	14.4	10.1
3.Manual	10.5	6.1	11.6	7.0	6.4	6.5	5.1	7.6	10.2	11.7	8.6	6.8
4.Skilled	13.0	8.6	3.6	7.8	4.5	5.5	12.6	19.2	6.2	4.4	5.4	8.4
5.Creative	14.7	6.0	5.3	11.6	4.8	20.4	4.3	6.9	7.0	5.4	5.5	7.5
6.High Pay	22.3	6.4	4.9	6.5	8.5	5.9	7.1	9.0	7.2	5.6	7.3	7.8
7.Quals.needed	17.9	7.5	5.5	6.8	5.1	4.1	17.3	10.0	6.3	3.9	7.2	7.3
8.Academic	18.2	6.4	5.7	6.3	5.1	4.6	14.9	9.0	6.8	5.7	6.9	7.9
9.Special Training	11.1	11.0	3.6	7.4	5.8	6.2	13.8	13.6	6.0	4.0	6.1	10.6
10.Help people	10.8	7.3	4.4	4.7	6.2	7.0	25.5	9.4	5.4	5.0	5.8	7.7
11.Physical	8.5	6.1	12.1	4.5	11.2	6.0	6.3	5.8	10.6	11.0	11.2	5.9
12.Selling	6.5	43.5	3.6	3.2	4.1	8.9	4.8	4.1	4.0	3.8	6.3	6.3
13.Professional	15.0	8.3	3.6	6.0	10.2	5.6	16.1	10.3	5.7	4.3	5.5	8.3
14.Working & Machinery	10.2	9.8	7.4	16.6	7.5	5.4	4.8	9.9	4.6	8.2	8.5	8.0
15.High Status	18.5	6.7	4.6	5.5	8.4	4.4	15.9	9.5	6.0	5.1	5.9	8.0
16.Personal Contact	9.6	10.2	4.9	5.5	5.6	10.9	16.3	7.2	6.3	5.3	8.0	9.3
17.Inside	6.0	6.1	5.1	3.5	11.2	5.6	4.6	5.1	19.2	5.2	22.4	5.0
18.End Product	9.1	9.3	7.0	9.3	7.3	9.0	6.6	9.1	9.3	6.6	6.7	9.2
19.Boring	18.3	6.7	6.2	6.0	8.7	5.8	8.9	10.9	5.5	6.1	6.5	9.1
20.Mathematical	11.7	11.3	8.7	10.9	5.5	7.1	6.6	8.8	7.0	6.5	6.4	7.5

Table 6.19 Showing the evaluation of the elements by all the respondents construct by construct
Figures given are percentages (n=419)

Once again the percentages shown for each element refer to saliences and do not of themselves indicate whether the evaluations are partly or wholly favourable or unfavourable. The table may usefully serve its purpose without the necessity of exhausting all the relevant information in it. For example in the case of the construct Dirty Element K, Farm Work, is judged to be the most salient. The same is true for the construct Working with People. We may infer that Farm Work is popularly conceived as both more dirty and less to do with working with people than the other elements. The evaluation of the elements in terms of the construct manual is less straightforward. Elements A, Ideal Job, C, Clerical Work, I, Builders Labourer, and J, Office Work are judged to be of similar salience. An inspection of the sums of deviations reveals that Ideal Job, Clerical Work and Office Work are evaluated negatively in relation to this construct while Builder's Labourer is evaluated positively. The most salient element in terms of the construct skilled in Element H, Builder's Labourer, evaluated negatively. For the construct Creative, Element F, Hairdresser is most salient evaluated positively. For High Pay Element A, Ideal Job accounts for 22% of the total variation evaluated positively. For the constructs Qualifications Needed and Academic Elements A, Ideal Job, and G, Nurse, are of similar salience evaluated positively and for the construct Special Training Elements G, Nurse, and H, Factory Unskilled, are most salient Element G evaluated positively and Element H evaluated negatively. For the construct Help People Element G, Nurse, accounts for more than a quarter of the variation recorded for that construct and is evaluated positively. For the construct

Physical Elements C, Clerical Work, and K , Farm Work are most salient the former evaluated negatively the latter positively. Perhaps the most remarkable occurence is that for the construct Selling Element B, Shop Work accounts for almost half the variation recorded for that construct and is evaluated positively. For the construct Professional Elements A, Ideal Job, and G, Nurse are judged most salient both evaluated positively and for the construct Working with machinery Element D Engineering Craft Apprentice is judged most salient and is evaluated positively. For the construct High Status Element A, Ideal Job, is most salient followed closely by Element G, Nurse both evaluated positively for the construct Personal Contact Element G, Nurse, is judged most salient and evaluated positively. For the construct Inside Element K, Farm Work is most salient evaluated negatively. For the construct End Product no element stands out as being particularly salient and for both constructs Boring and Mathematical Element A is most salient and evaluated negatively in the former and positively in the latter.

What emerges most clearly from this analysis of the most salient items per construct is the predictable and commonsense nature of the evaluations. The same is true of an analysis of the least salient elements and indeed from an analysis of saliences in rank order per construct. To include such a full analysis here would require a disproportionate amount of time and space on this section of the thesis without substantially enlarging on the points already made. It is worth recording that the 419 respondents completing grids with 12 elements and 20 constructs made 100,560 independent evaluations. The predictable commonsense results described above give further grounds for confidence in the grid and its procedures.

Also of interest is an inspection of particular elements in relation to the constructs that appear to be important. For Element A for example, Ideal Job, the highest saliences refer to High Pay, Qualifications, Academic, Professional, High Status, and Boring. All but the last are positively evaluated. For Element D, Engineering, only working with Machinery is particularly salient and none of the constructs that appear to important in the evaluation of an Ideal Job appear to be important in the evaluation of Engineering. For Element G, Nurse, the construct Help People is most salient and some of the constructs associated with Ideal Job are also judged salient for Nurse e.g.Qualifications, Academic, Professional, and High Status. It would be surprising if the saliences of constructs already identified as important in connection with Ideal Job when evaluated in relation to other jobs such as Engineering, Nurse etc. were not an important factor in the popular images held of occupational titles which are themselves likely to play an important part in determining which jobs certain groups have a tendency to move towards or to avoid. These issues are discussed more fully in a later section concerned with different group images of occupational titles.

6.2.7 The Utilisation of the Constructs

Previous sections have concentrated largely on the Elements or Job Titles and how they were evaluated by individuals and groups especially Element I, Ideal Job. It is also of interest to explore how the constructs were utilised by the different groups especially as the constructs used in the provided grid were drawn from two different sources, i.e. the samples of constructs elicited by the teachers and pupils separately. For example, it is of interest to discover which constructs are generally of most use in discriminating between the elements. It is also of some importance whether or not the pupils are as capable of utilising the teachers constructs in discriminating between the elements as they are in utilising their own. Finally it is worth exploring whether or not those pupils that stay at school and those that leave employ the same constructs and, if so, whether they do so with equal competence and effect. To answer these questions it is necessary to carry out a further analysis on groups of grids and on a construct by construct basis.

When identically constructed grids are combined together a three discussional array of data results. A column for every element and a row for every construct provide two of the three dimensions. The third dimension refers to the number of grids combined together as it were in a stack of identical grids. It has already been explained that the programme SERIES, which is included in the Grid Analysis Package, performs all the necessary calculations required to combine a number of grids together and to extract a mean or consensus grid which represents the evaluation of the elements in terms of the constructs by an average or typical member of a group. In addition the data referring to a particular construct may be extracted and

treated as a two dimensional array with a column for each element as before but now with a row for each separate grid respondent or occasion on which a grid was completed. This array may be subjected to an analaysis of variance in which a general mean for the whole array is calculated followed by the column and row means which will vary about the general mean. Thus it is possible to calculate the variation attributable to differences between the elements, taking the constructs as a whole, and also the variation attributable to differences between the respondents, or occasions, taking the elements as a whole. Where the sum of these two variations does not equall the total variation recorded in the array the residual variation may be attributed to variation arising out of the interactions between particular elements and particular respondents or occasions.

Tables arising from an analysis of variance performed on the grids of each of the groups identified earlier in this study are included in Appendix IX . The tables show the total observed variation, variation due to differences between occasions, variation due to differences between elements, and variation due to occasion element interactions. A preliminary inspection of these tables reveals that differences between respondents or occasions are generally very small and only account for approximately 10% -15% of the total variation on average. The smallest variation (5%) due to differences between occasions was recorded by the pupils who stayed at Southover School (Table IX.8) along Construct I, Dirty. The most variation due to differences between respondents was recorded by those pupils at Southover School who were uncertain as to whether to leave or stay along Construct 3, Manual 36%.

CONSTRUCTS	GROUPS											
	Northover Teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover Teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
1. Dirty	55	63	55	67	50	58	58	59	63	52	48	52
2. Working-people	48	43	30	44	22	39	52	22	17	35	18	14
3. Manual	54	36	23	40	14	30	54	18	11	23	13	9
4. Skilled	62	58	47	62	40	53	66	35	33	37	38	29
5. Creative	48	39	27	38	23	34	40	22	17	20	20	18
6. High Pay	41	28	20	34	18	21	38	19	13	17	12	16
7. Qualifications needed	64	54	22	62	42	46	55	36	30	31	32	30
8. Academic	58	39	28	46	26	29	54	28	18	29	19	18
9. Special Training needed	61	39	45	58	38	52	54	37	33	44	32	33
10. Help People	53	50	39	50	38	43	50	26	25	30	25	24
11. Physical	51	47	33	48	26	40	54	37	25	42	23	25
12. Selling	63	47	38	49	31	44	54	33	30	38	32	26
13. Professional	65	51	36	55	26	46	47	31	27	34	28	25
14. Working & Machinery	50	47	40	48	36	45	43	30	21	26	33	19
15. High Status	46	40	25	47	17	31	53	28	18	26	16	20
16. Personal Contact	66	48	29	48	19	42	56	35	16	37	15	17
17. Inside	44	42	40	50	30	41	44	27	21	35	24	17
18. End Product	34	29	26	31	22	30	33	17	11	16	10	13
19. Boring	37	18	7	23	8	7	27	25	2	19	2	3
20. Mathematical	33	23	21	27	18	21	41	16	10	14	11	11

Table 6.20 Showing from an analysis of variance the percentage of variation attributable to differences between the elements for each group in relation to each construct.

This figure is exceptionally high. Self evidently the majority of the variation recorded by each of the groups is attributable to differences between the elements and to occasion/element interactions. It is the variation attributable to differences between the elements that indicates the extent to which a particular group has employed the constructs meaningfully and effectively in discriminating between the Job Titles. Table 6.20 show on page 229 is a composite table extracted from the individual tables showing the percentage of variation attributable to differences between the elements for each group on a construct by construct basis and it is on this tablethat the following interpretation of the data is based.

An examination of Table 6.20 immediately reveals two important considerations. Firstly, if the rows are compared it becomes obvious that some constructs account for a much greater amount of variation due to differences between the element than others. Secondly if the columns are compared it becomes obvious that not all the groups are equally successful in utilising the constructs to discriminate between the elements.

Construct I, Dirty is successfully utilised by all groups and accounts for between 48% and 63% of variation due to differences between the elements. Construct 19, Boring, by contrast accounts for only between 2% and 25% among the pupils groups although 25% and 37% in the two teachers groups. Construct 4, Skilled, accounts for between 29% and 66% of variation due to differences between the elements and Construct 20, Mathematical, accounts for only between 10% and 41%. It is interesting that Construct 6, High Pay, is not

one of those most effectively utilised by either the teachers or the pupils to discriminate between the elements. In summary the most useful constructs in discriminating between the elements by all groups appear to be Constructs 1, Dirty, 4, Skilled, 9, Special Training, 7, Qualifications and 13, Selling. Although these are fairly simple and basic attributes of the jobs similar basic attributes such as Manual, Construct 3, Pay, Construct 6, and End Product, con /struct 18 are notice/ably less effectively utilised by the groups with the exception of the teachers in the case of Construct 3, Manual. The more abstract attributes of jobs such as Creative, Construct 5, Academic, Construct 8, and High Status, Construct 15, are apparently even less useful except possibly to the two teachers groups from which it will be remembered these constructs principally derive.

Comparisons between the groups rather than between the constructs are also revealing. With the exception of Construct I, Dirty, in which pupils from both schools record more variation attributable to differences between the elements than teachers, it is the teachers who most effectively apply all the constructs in that the variation recorded by teachers exceeds that for all other groups. In the case of both schools the pupils who stayed at school utilised the constructs more effectively than those who left with the exception of the leavers of Southover School who recorded more variation attributable to differences between the elements along Construct I than did those who stayed at school. The same is generally true of those whose intention was to stay as compared with those whose intention was to leave and, as in earlier section of this study, those who were uncertain about

leaving or staying record percentages in between those of the pupils whose intention was to stay or leave. The fact that this pattern repeats itself identically among the pupils of both schools who completed grids independently and at different times gives grounds for confidence in the relationships proposed. It is also the case that if equivalent groups from both schools are compared the pupils of Northover School do consistently better than those of Southover School, sometimes dramatically better. For example those who stayed at Northover School utilised all the constructs better than those who stayed at Southover School, e.g. Construct 3, Manual, which is twice as effectively utilised by Northover School stayers.

The various points made thus far can be further highlighted with reference to the performance of the teachers and pupils on the constructs extracted from each other's construct samples. It might be expected that the teachers will be better able to construe the constructs of the pupils than the pupils are able to construe the constructs of the teachers. This aspect of the study assumes considerable importance in the context of the current debate concerning the effects of teacher influences on the occupational aspirations and choices of pupils. The two following tables show clearly that whilst the teachers are well able to employ the pupils constructs in discriminating between the job titles the same is not true the other way around.

Table 6.21 shows the performance of the teacher and pupil groups using the teachers constructs. In both schools neither those who stayed nor those who left are able to use the teachers constructs as effectively as the teachers although those who stayed are able to utilise the teachers constructs more effectively than those who left.

TEACHERS' CONSTRUCTS	GROUPS					
	Northover Teachers	Northover Pupils Stayers	Northover Pupils Leavers	Southover Teachers	Southover Pupils Stayers	Southover Pupils Leavers
5 Creative	48	39	27	40	22	17
8 Academic	58	39	28	54	28	18
11 Physical	51	47	33	54	37	25
12 Selling	63	47	38	54	33	30
13 Professional	65	51	36	47	31	27
15 High Status	46	40	25	53	28	18
16 Personal Contact	66	48	29	56	35	16
18 End Product	34	29	26	33	17	11
20 Mathematical	33	23	21	41	16 1	10
AVERAGE %	52	40	29	48	27	19

Table 6.21 Showing from an analysis of variance the percentage of variation attributable to differences between the elements for the teachers, stayers and leavers from both schools in relation to the teachers' constructs

It can perhaps now be argued that those who stay at school do seem to see eye to eye or construct to construct with the teachers more than those who leave. Again it is worth noting that the pupils of Northover School perform noticeably more effectively on the teachers constructs than the pupils of Southover School

PUPILS' CONSTRUCTS	GROUPS					
	Northover Teachers	Northover Pupils Stayers	Northover Pupils Leavers	Southover Teachers	Southover Pupils Stayers	Southover Pupils Leavers
1 Dirty	55	63	55	58	59	63
2 Working & People	48	43	30	52	22	17
3 Manual	54	36	23	54	18	11
4 Skilled	62	58	47	66	35	33
6 High Pay	41	28	20	38	19	13
7 Qualifications needed	64	54	22	55	36	30
9 Special Training needed	61	39	45	54	37	33
10 Help People	53	50	39	50	26	25
17 Inside	44	42	40	44	27	21
AVERAGE %	54	46	36	52	31	27

Table 6.22 Showing from an analysis of variance the percentage of variation attributable to differences between the elements for the teachers, stayers and leavers from both schools in relation to the pupils constructs.

Table 6.22 shows the performance of the teachers and pupil groups on the pupils' constructs and here again a similar pattern emerges. In this case however the amount of variation attributable to differences between the elements recorded by the pupils who stayed and those who left both schools is, on average, higher on the pupils constructs than on the teachers constructs. This finding is in the expected direction. Once again the data indicates a superior performance among the pupils of Northover School over those of Southover School.

The large majority of the variation not accounted for by variation attributable to differences between the elements is accounted for by occasion element interactions as is obvious from the separate tables in Appendix IX referred to earlier. The percentage of variation attributable to occasion element interactions indicates the amount of disagreement within a group with regard to the evaluation of particular elements by particular respondents. In simple terms the interaction aspect measures the extent of differences between differences. It follows that a high percentage of variation due to interaction indicates a low level of agreement among respondents with regard to the evaluation of the elements in terms of a particular construct. The table on page 236 is another composite table made up of data extracted from the separate analysis of variance tables. It shows the percentage of variation attributable to occasion/element interacts for each group on a construct by construct basis.

The main feature of this table is that interaction effects account for a significant amount of variation varying from 23% for Construct 16, Personal Contact, for Northover Teachers, to 85% for Construct 19, Boring, by pupils at Southover School who intended to leave. It follows from earlier analysis that these constructs which contribute least to the variation attributable to differences between the elements have high percentages of variation attributable to interaction effects. Thus Constructs 5, Creative, 6, High Pay, 8, Academic 15, High Status, 18, End Product, 19, Boring and 20, Mathematical all show high percentages attributable to interaction effects and for those groups where the interaction effect is high it follows that there is least agreement between members of the group concerning the evaluation of the elements along a particular construct. Constructs 5,6,8,15,18, and 20, were selected from the construct sample for teachers and it is to be expected that there will be

CONSTRUCTS	GROUPS											
	Northover Teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover Teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
1 Dirty	32	30	38	26	44	33	32	32	40	45	41	33
2 Working & People	36	46	44	56	44	37	60	55	56	56	52	
3 Manual	33	50	57	46	61	55	36	53	60	59	61	54
4 Skilled	29	33	41	30	44	38	26	50	54	51	52	56
5 Creative	37	45	53	46	61	45	42	59	60	58	62	58
6 High Pay	43	57	64	52	69	60	52	63	59	68	58	59
7 Qualifications needed	28	31	42	28	44	39	34	50	54	59	49	55
8 Academic	30	44	55	38	60	52	29	55	61	56	60	61
9 Special Training needed	29	34	40	31	61	35	36	54	50	45	50	54
10 Help People	30	38	44	38	47	40	35	58	57	55	58	56
11 Physical	32	40	53	39	61	44	34	51	60	48	59	61
12 Selling	27	40	46	39	55	43	32	42	50	41	51	50
13 Professional	27	37	46	35	55	38	36	50	58	50	56	61
14 Working & Machinery	38	43	48	42	55	41	46	50	64	56	57	68
15 High Status	40	45	59	39	70	52	34	47	62	54	62	60
16 Personal Contact	23	40	48	37	60	40	36	52	63	52	68	57
17 Inside	42	49	49	41	58	49	46	60	62	52	59	65
18 End Product	47	55	64	54	69	58	57	69	73	70	75	71
19 Boring	55	68	76	62	76	77	62	55	83	65	85	71
20 Mathematical	47	60	62	58	66	61	43	68	72	67	73	70

Table 6.23 Showing from an analysis of variance the percentage of variation attributable to occasion/element interactions

more agreement among the teachers concerning the evaluation of these elements than among the pupils. Hence the percentage variation attributable to occasion element interactions for the teachers are substantialy lower than for the pupils groups.

For experimental purposes the analysis of variance gives a good deal of useful information and suggests further starting points for new inquiries. There is however a risk of overinterpreting the statistics. What the analysis does not do is allow us to make valid judgements about the relevance and meaning of the grid and the data recorded in it by individual respondents. It may be valid to compare the amount of variation attributable to differences between the elements on a construct by construct basis and to infer conclusions about the apparent usefulness of the constructs by members of a particular group. This percentage may be as high as 66% of the total variation but equally it may be as little as 2%. The large amounts of variation attributable to occasion/element interactions however indicate clearly the idiosyncratic and subjective nature of individual judgements within the groups. The interaction percentage gives a useful guide as to the amount of disagreement among respondents in their evaluation of the elements along a particular construct and an inspection of the residual mean squares of the elements shows that agreement is closer about some elements than others. The validity of the grids on an individual basis has already been demonstrated in the confirmation of occupational aspiration and prediction of first destination in employment studies described in previous sections. However the results of the analysis of variance described in this section suggest the need for caution in interpreting group or consensus grids in particular with regard to any assumption that may be made about groups based on representative, typical, or average group members.

6.2.8 Group Images of Occupational Titles

The processes of combining grids from a number of respondents groups together for some research purpose, of extracting mean or consensus grids, and of submitting the consensus grids to an analysis by INGRID in the same manner as for individual grids has already been explained. However it has not so far been necessary to introduce all of the analyses and tables included in the output for INGRID and an understanding of many of these is essential for thepurposes of this section.

The output for INGRID includes basically three different kinds of information. For example there are tables showing the breakdown of total variation about construct and element means into sub totals showing the percentage variation attributable to each construct and to each element. The tables showing this breakdown for the elements were essential to be arguments presented in Section 6.2.5. The second kind of information in the output is concerned with relationships between the elements and constructs together. Tables for each of these sets of relationships appear in the output and the relationships are expressed either as correlations, angles, or co-sines. The third kind of information expresses these relationships in terms of the main axes of variation which are established by means of a principal components analysis. There are in addition, the tables of element distances which have been described in and were essential to the arguments put forward in Sections 6.2.3 and 6.2.4.

This section together, with the arguments presented in it, is mainly concerned with the second and third kinds of information, that is information concerning all the relationships between the elements and constructs among themselves and also along the principal axes of variation. For the correlations and angular distances between the constructs.....

> "..... the variances of the constructs must be normalised. Then geometrically speaking the constructs are all assigned locations at an equal distance from a common origin, and differ only in being placed in different directions away from it. They lie on the surface of a hypersphere and the differences between any two of them can be expressed as an angular or circumferential distance: the angle they subtend at the centre".
>
> (Slater, 1972).

Similarly, the relations between constructs and elements and between elements and elements are expressed in tables as cosines which are mathematically equivalent to correlations (Slater, 1977). It is thus possible to construct from these three tables a composite table showing the direction cosines or correlations between all the elements and all the constructs in any particular grid. Tables showing the complete set of relationships for consensus grids representing all the groups used in this study are given in Appendix XI.

The principal component Analysis-----

> "-----provides a common co-ordinate system of the two dispersions. (*i.e. of the elements and the constructs*) ----the components form an ordered series, each accounting for an independent part of the variation from the largest to the least".
>
> (Slater, 1972).

Every component has both a construct vector and an element vector in which there is an entry for each construct and for each element. These construct and element vectors are sets of coefficients from which the loadings of each construct and element on every component are calculated. Both the vectors and the loadings are printed in the output. It is therefore possible to take a pair of components as reference axes and to plot the elements and constructs as points on a surface using their loadings as co-ordinates. Normally the first two components will be chosen an axes as these will enable a psychological map to be drawn that accounts for the great majority of the variation recorded. Such maps may be regarded as a section of the psychological space of an individual or of the average member of a group. A set of psychological maps is provided for each of the groups used in this study in Appendix X . These maps show the distribution of the elements within the construct space in each case using the first two principal components as axes. The amount of variation accounted for by the first two components is stated for each map. A circle of a convenient radius is drawn around the elements. The constructs could also have been plotted either within the circle or projected to the circumference but since all the relationships are available in the relevant table in each case it was felt that plotting the constructs would have congested the maps without any real interpretive benefits. The remainder of this section is concerned with interpretation of the tables and maps for each of the groups.

The psychological maps showing the distribution of elements within the construct space for each of the groups concerned are more remarkable for their similarities than their differences. The maps are useful in that they provided confirmation of some of the findings

described in earlier sections as well as new insights into different group perceptions of the occupational titles.

To begin with it is of interest that the amount of variation accounted for by each of the principal components for each of the groups is very similar as the following table shows.

GROUP	COMPONENTS 1	2	3	4	5	6	7	8	8	10	11
Northover Staff	48.8	24.1	9.1	5.0	4.1	3.9	2.9	0.9	0.5	0.3	0.1
Northover Stayers	45.8	25.9	12.4	6.4	4.6	2.2	1.2	0.8	0.6	0.1	0.0
Northover Leavers	43.4	27.4	11.4	6.6	5.2	2.6	1.6	0.8	0.6	0.2	0.1
Northover Stay	46.0	25.1	12.4	6.8	4.5	2.2	1.4	0.9	0.5	0.1	0.0
Northover Leave	40.9	29.4	11.1	6.3	5.6	3.0	1.6	1.1	0.6	0.2	0.1
Northover Uncertain	45.1	26.4	11.8	6.5	4.6	2.4	1.5	0.8	0.5	0.2	0.1
Southover Staff	49.4	23.8	8.2	6.3	3.9	3.5	2.8	1.1	0.7	0.1	0.1
Southover Stayers	44.5	25.3	10.9	6.2	5.3	3.1	1.9	1.5	0.6	0.5	0.1
Southover Leavers	40.7	26.7	12.2	7.6	4.6	3.7	2.0	1.3	0.6	0.5	0.1
Southover Stay	44.6	24.5	10.9	6.2	4.4	3.9	2.4	1.7	0.7	0.5	0.1
Southover Leave	40.8	25.1	11.2	8.5	4.9	4.5	2.4	1.2	0.7	0.5	0.1
Southover Uncertain	39.9	27.8	13.2	7.4	4.5	2.8	1.9	1.4	0.7	0.4	0.0

Table 6.24 Showing the amoung of variation accounted for by each of the principal components for each of the groups expressed as a %.

Secondly it is of interest that with the exception of minor differences, the first and second components are defined by high loadings on the same constructs for each of the different groups. The following constructs define the first components.

Constructs	4	Skilled
	6	High Pay
	7	Qualifications needed
	8	Academic
	9	Special Training needed
	13	Professional
	15	High Status
	19	Boring

The following constructs define the second component

Constructs	1	Dirty
	3	Manual
	11	Physical
	14	Working with machinery
	17	Inside
	18	End product

Thus it would appear that for all the groups the occupational titles are evaluated in terms of two principal axes the first of which may be defined in terms of skill level qualification and training, pay and status, and intrinsic interest in the job. The second axis relates to basic working conditions e.g. dirty, inside, physical, manual, working with machinery and concerned with an end product. Table 6.24 shows that the first component accounts for less variation among the pupils than among

the teachers and less among the pupils who left than among those who stayed. Similarly the first component accounts for less variation among those pupils who intended to leave than among those whose intention was to stay. These differences are in the same direction for both schools. The second component on the other hand accounts for more variation among the pupils than among the teachers and more among pupils who left or whose intention was to leave than among those who stayed or who intended to stay. This analysis suggests that pupils tend to see jobs rather more in terms of working conditions than in terms of status, pay, and qualifications than do teachers and that this is more true of pupils oriented towards leaving than those towards staying. Again this finding is unsurprising and accords with common sense.

The distribution of the elements themselves shows that for the Northover teachers, the Northover pupils who stayed at school, the Northover pupils who intended to stay at school, and the Southover teachers the most salient element evaluated positively is Element A, Ideal Job. For all other groups the most salient element evaluated positively is Element G, Nursing. For all groups without exception the most salient element evaluated negatively is Element H, Factory (unskilled). The salience of elements may be determined by their distance from the origin of the axes which indicates the amount of variation recorded. This information became available in Section 7.4.5. and the maps discussed here confirm the findings described earlier there and provide a visual representation of the data. Thus with the exception of the four groups identified above the most prominent reference points in the consensus grid maps are the occupational titles Nursing and Factory (unskilled). For the four other groups Element A, Ideal Job, is even more salient than Element G, Nursing.

The maps provide useful new information about how the occupational titles are grouped together for the various types of informants. Here again the groups are noticeably similar in their perceptions. Typically Elements A and G, Ideal Job and Nursing, are located close together and form a dyad. However this is not true of those who intended to leave in both schools for whom Elements E and D, Armed Forces and Engineering Craft Apprenticeship, are located in close proximity to Element A, Ideal Job, forming a triad. For all groups of informants Elements I and K, Builders Labourer and Farm Worker, are located close together as are Elements H and L, Factory unskilled and Warehouse Assistant. For all groups, with the exception of those pupils who stayed at Northover School whose evaluation of Element J, Office Junior, is anomalous, Elements B,C, and J, Shop Work, Clerical Trainee and Office Junior, are evaluated similarly and form another triad. With the possible exception of the two teachers groups Elements D and E, Engineering Craft Apprenticeship and Armed Forces, are evaluated similarly and form another dyad. For all groups Element F Hairdresser Apprentice stands on its own although for the two teachers groups it could be argued that Elements D,E, and F are evaluated independently.

Just as a road map is a scaled down representation of geographical objects and the relative distances between them, a kind of visual metaphor, so the psychological maps presented here may be regarded as a visual metaphor representing psychological objects and the relative distance between them. Then for all groups, the maps show that only Elements D,E,F, & G , Engineering, Army Forces, Hairdressing, and Nursing 'come close' to Element A the notion of an ideal job. ALso the psychological distances between Element A and Elements D,E,F, & G are greatest for the two

groups who intended to stay, and less great again for the pupils who left or who intended to leave. For the teachers and the pupils who stayed or intended to stay only Element G Nursing, comes close to their ideal job. But for the pupils who left or who intended to leave Elements D,E, and F are much closer to the ideal than they are for the other groups. In the case of those who intended to leave in both schools Elements D and E, Engineering and Armed Forces, are closest to the ideal. To begin to explain these findings it is necessary now to consult the tables showing the complete set of relationships between the elements and constructs for each of the groups concerned (Appendix XI).

Firstly it is necessary to define what is meant by an ideal job for each of the groups. Table 6.25 has been constructed by extracting the correlations between Element A, Ideal Job, and all the constructs for each of the groups.

Constructs	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
1	-.46	-.44	-.20	-.48	.07	-.33	-.53	-.54	-.27	-.49	-.02	-.49
2	.62	.41	.47	.40	.45	.45	.67	.49	.27	.53	.15	.35
3	-.49	-.39	-.14	-.39	.33	-.34	-.62	-.44	.00	-.44	.30	-.29
4	.87	.89	.88	.89	.85	.87	.80	.82	.97	.78	.69	.75
5	.78	.49	.52	.47	.66	.49	.63	.39	.37	.36	.59	.09
6	.69	.96	.94	.96	.88	.93	.64	.89	.84	.88	.85	.80
7	.93	.93	.77	.94	.62	.84	.91	.82	.67	.84	.52	.76
8	.96	.92	.80	.94	.69	.81	.95	.80	.67	.78	.46	.80
9	.83	.86	.82	.86	.76	.83	.81	.73	.70	.75	.56	.70
10	.76	.49	.46	.49	.35	.49	.77	.59	.28	.66	.13	.33
11	-.26	-.07	.09	-.10	.36	-.02	-.39	-.13	.06	-.24	.25	-.12
12	-.08	-.27	-.34	-.25	-.29	-.34	-.12	-.10	-.43	-.15	-.43	-.31
13	.90	.89	.89	.90	.86	.89	.92	.88	.69	.83	.66	.63
14	-.17	-.05	.09	-.12	.40	-.01	-.21	-.30	-.09	-.38	.05	-.18
15	.95	.94	.91	.95	.84	.92	.90	.89	.73	.85	.64	.75
16	.68	.47	.53	.47	.48	.53	.69	.58	.39	.59	.29	.43
17	.14	.13	.09	.13	.09	.11	.24	.19	-.01	.14	-.24	.33
18	.26	.06	.27	.01	.59	-.12	.01	-.02	-.06	.05	.15	-.27
19	-.85	-.87	-.84	-.86	-.75	-.91	-.87	-.86	-.79	-.81	-.63	-.79
20	.43	.61	.34	.63	.38	.39	.65	.40	.09	.24	-.03	.33

Table 6.25 Showing the correlations of Element A with every construct for each group.

This table reveals a substantial amount of agreement about what constitutes an ideal job but also some important differences. For all groups Element A, Ideal Job, correlates highly with constructs 4,7,8,9,13, 15, and 19. These constructs, Skilled, Qualifications, Academic, Special Training, Professional and Boring are the constructs that define the first component. The correlations between Element A and Constructs 2,6,10, and 16 are also of interest because they show differences in the importance attached to them by different groups. For example Construct 6, High Pay, correlates highly with Element A for all the pupil groups but markedly less so for the two teachers groups. Also, the two teachers groups correlated Constructs 2,10 and 16 more highly with Element A than any of the pupil groups. In simple terms therefore, all groups regard the items skill level, qualifications, academic, training, professional, and boring as integral with their ideas about an ideal job. The pupils in addition equate ideal job with high pay to a greater extent than the teachers who place more emphasis on working with and helping people, an emphasis not shared to the same extent by pupils. It is perhaps worth noting that if the correlations between Element A and Construct 10 are examined for the pupil groups it becomes apparent that the evaluations of the pupils who stayed at school or who intended to stay are closer to those of the teachers than the evaluations of the other pupil groups. Construct 10 refers to helping people and the pupils who stay at school apparently share to a greater extent with the teachers the idea that an ideal job includes helping other people. Finally, an examination of the correlations between Element A and Construct 5 for the different groups reveals that both teachers groups attach greater importance to creativity in their idea of an ideal job than any of the pupil groups.

Table 6.26, showing the correlations between Element A and all other elements for each of the groups confirms in precise numerical detail the findings which were indicated by an examination of the psychological maps. Only Elements D,E,F, and G are correlated positively with Element A, Ideal Job. All the other elements are correlated negatively with Element A by all groups.

Element	Northover Teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover Teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
B	-.18	.36	-.38	-.33	-.39	-.38	-.12	-.21	-.45	-.25	-.51	-.28
C	-.00	.22	.16	.21	-.11	.26	.15	.31	.17	.33	-.04	.32
D	.25	.39	.57	.27	.79	.46	.29	.17	.36	.01	.46	.29
E	.27	.42	.50	.36	.51	.51	.42	.35	.46	.34	.43	.42
F	.24	.16	.21	.10	.18	.28	.20	.38	.29	.42	.26	.17
G	.75	.68	.68	.66	.57	.71	.79	.66	.55	.71	.39	.58
H	-.79	-.88	-.84	-.88	-.74	-.87	-.87	-.86	-.76	-.79	-.61	-.81
I	-.58	-.51	-.37	-.52	-.18	-.46	-.71	-.45	-.21	-.49	.11	-.47
J	-.37	-.09	-.14	-.03	-.26	-.16	-.25	.01	.01	-.09	-.17	.17
K	-.46	-.53	-.38	-.55	-.09	-.49	-.54	-.52	-.36	-.49	-.19	-.58
L	-.89	-.78	-.87	-.77	-.91	-.83	-.84	-.83	-.64	-.82	-.60	-.62

Table 6.26 Showing the correlations between Element A and all other Elements for each group

Of the positively correlated elements Element G Nursing is the most strongly correlated with Element A, Ideal Job, for all groups except the pupils who intended to leave both schools for whom Element D, Engineering Apprenticeship is correlated most strongly. The correlation of Nursing with Ideal Job is not as strong among the pupils as among the teachers and the correlation of Engineering with Ideal Job tends to be stronger among the pupils than among the teachers. The evaluation of Elements D,E, and F

is generally more favourable among the leavers than among the stayers although this is not so for Element F at Southover School.

In order to account satisfactorily for these overall evaluations of particular elements in relation to Element A, Ideal Job it is necessary to inquire into the relevant contributory evaluations on individual constructs. To investigate the evaluation of all the elements on all the constructs for every group is not necessary for present purposes. Of special interest here are the different evaluations of particular elements by particular groups, e.g. the teachers, the pupils who left or who intended to leave and the pupils who stayed or intended to say, for example Element D, Engineering Apprentice, and Element G, Nursing. The number of constructs chosen for further analysis may be reduced by selecting only those constructs which contribute most variation (i.e. the constructs that define the first component) and those which have been identified as most important in relation to Element A, Ideal Job. In practice these constructs were almost the same constructs 4,6,7,8,9,13,15, and 19. The final section of this analysis is therefore concerned with the evaluation only of those job titles positively correlated with ideal job, Engineering Apprentice, Armed Forces, Hairdress Apprentice, and Nursing, on selected constructs as explained above.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.49	.52	.66	.42	.69	.67	.61	.41	.63	.45	.64	.58
E	.31	.46	.45	.43	.46	.47	.41	.53	.62	.52	.59	.66
F	.24	.34	.38	.28	.36	.43	.30	.44	.45	.49	.45	.44
G	.86	.79	.79	.79	.76	.80	.81	.87	.81	.85	.81	.82

Table 6.27 Showing the correlations between Elements D,E,F & G on Construct 4 for each group.

The above table showing the correlation between the four elements on Construct 4, Skilled, shows that Element G, Nursing, is judged by all pupil groups to be the occupational title most associated with skill. The next skilled occupation is Element D, Engineering Apprentice, for all groups except the uncertain pupils of Southover School who judged Element E, Armed Forces, to be more concerned with skill than Element D, Engineering Apprentice. Here again it is noticeable that the evaluation of Element D in terms of Construct 4 is substantially higher among pupils who left or intended to leave than among those who stayed or intended to stay.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.24	.48	.65	.32	.72	.65	.33	.47	.65	.32	.69	.64
E	.39	.48	.48	.39	.40	.57	.81	.61	.64	.64	.63	.59
F	-.08	.06	.01	.00	-.03	.10	-.21	.27	.08	.36	.05	.04
G	.28	.59	.58	.56	.56	.61	.39	.55	.51	.75	.48	.43

Table 6.28 Showing the correlations between Elements D,E,F, & G on Construct 6 for each group.

The correlations of the four elements with Construct 6, High Pay, show a different pattern. For both groups of teachers Element E, Armed Forces, correlated most highly with high pay. This is also true for those pupils who stayed at Southover School. But for those pupils who stayed at Northover School and for both groups of pupils who intended to stay on at the two schools Element G, Nursing, is most associated with high pay. For the Northover and Southover school leavers, for those who intended to leave and for both groups of uncertain pupils Element D, Engineering Apprenticeship is most associated with high pay. Those development correlations with respect to high pay, having regard to the fact that high pay is extremely

highly correlated with idea job for all the pupil groups, may begin to explain how the two groups of pupil leavers evaluated Element D, Engineering Apprenticeship, as closest to their ideal jobs unlike all the other pupil and teacher groups for whom Element G was closest.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.39	.37	.51	.26	.53	.52	.52	.36	.50	.29	.53	.47
E	.26	.43	.21	.38	.15	.31	.42	.38	.36	.29	.39	.35
F	.13	.06	.21	.02	.18	.24	.08	.26	.28	.29	.33	.20
G	.85	.79	.81	.78	.79	.83	.87	.85	.82	.84	.84	.29

Table 6.29 Showing the correlations between Elements D,E,F and G on Construct 7 for each group.

Construct 7 refers to qualifications and for all groups except the pupils at Southover School who were uncertain of whether to leave or to stay Element G is most associated with qualifications. Again Element D, Engineering Apprenticeship, is evaluated more favourably on Construct 7 by the pupil leavers than the stayers. For the leavers for the two teachers groups and for the uncertain groups Element D is more associated with qualifications than Elements E and F but for the stayers Element E, Armed Forces is more associated with qualifications than Element D.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.39	.29	.50	.21	.51	.50	.42	.25	.49	.22	.57	.39
E	.28	.35	.29	.29	.27	.35	.51	.28	.40	.26	.44	.35
F	.07	.07	.22	.07	.19	.19	-.00	.27	.33	.29	.35	.28
G	.78	.76	.84	.75	.85	.82	.84	.76	.85	.83	.83	.81

Table 6.30 Showing the correlations between Elements D,E,F, and G on Construct 8

Table 6.30 referring to element correlations with Construct 8, Academic, shows a familiar pattern in which there is general agreement that Element G, Nursing, is most associated with the construct academic. There is disagreement among the groups as to which of the other three elements is most associated with academic. Yet again the leavers and the uncertain pupils evaluate Elemend D, Engineering, more favourably than those who stay (or intended to stay) and more favourably than both teacher groups. A similar pattern is discernible in Table 6.31 which refers to the Construct 9, Special training.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.50	.49	.62	.42	.62	.62	.62	.51	.61	.46	.65	.57
E	.29	.50	.46	.47	.38	.54	.47	.59	.59	.56	.57	.62
F	.30	.39	.42	.32	.45	.46	.29	.42	.52	.48	.53	.48
G	.87	.82	.83	.80	.83	.84	.85	.82	.85	.85	.84	.84

Table 6.31 Showing the correlations between Elements D,E,F, & G with Contruct 9 for each group.

It is interesting to note that the uncertain groups of pupils at Northover School have evaluated Element D, Engineering Apprenticeship, most favourably after Element G, Nursing, in relation to Constructs 4,6,7,8, and 9. The uncertain group at Southover School have done the same for Constructs 6,7, and 8, but not for Constructs 4 and 9 where Element E, Armed Forces is evaluated most favourably after Element G, Nursing.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.28	.38	.53	.28	.61	.52	.39	.38	.56	.37	.60	.48
E	.45	.65	.62	.60	.63	.66	.55	.60	.79	.62	.77	.80
F	.20	.31	.34	.21	.37	.40	.14	.38	.46	.44	.46	.42
G	.93	.88	.88	.86	.86	.89	.94	.85	.86	.88	.85	.87

Table 6.32 Showing the correlations between Elements D,E,F, and G on Construct 13 for each group

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	.39	.39	.43	.24	.57	.44	.47	.32	.49	.24	.56	.43
E	.40	.62	.66	.55	.66	.68	.54	.48	.74	.46	.76	.71
F	.15	.10	.24	.09	.27	.29	.16	.31	.34	.36	.35	.28
G	.87	.84	.89	.81	.89	.88	.93	.88	.91	.94	.87	.91

Table 6.33 Showing the correlations between Elements D,E,F, & G on Construct 15 for each group.

Tables 6.32 & 6.33 showing the Element correlations on Constructs, 13, Professional, and 15, High Status may be taken together as most of the relationships are in the same direction. On both constructs the Elements are evaluated from most to least favourably as follows, Element G, Element E, Element D, and Element F, for all groups with the exception of those who stayed at Southover School for whom the order is Element G, Element E, Element F, Element D. Thus, again there is general agreement that Nursing is most associated with professional and high status. Engineering Apprenticeships are regarded as less professional and of lower status than the Armed Forces and for some groups less professional and of lower status than hairdresser apprenticeships.

Element	Northover teachers	Northover Stayers	Northover Leavers	Northover Stay	Northover Leave	Northover Uncertain	Southover teachers	Southover Stayers	Southover Leavers	Southover Stay	Southover Leave	Southover Uncertain
D	-.44	-.47	-.61	-.43	-.72	-.48	-.47	-.28	-.34	-.09	-.12	-.56
E	-.39	-.66	-.65	-.65	-.62	-.65	-.38	-.67	-.65	-.66	-.47	-.73
F	-.12	-.09	.02	.01	.10	-.18	-.17	-.14	-.13	-.09	-.32	-.02
G	-.77	-.59	-.37	-.54	-.13	-.59	-.78	-.54	-.47	-.42	-.54	-.48

Table 6.34 Showing the correlations between Elements D,E,F, & G on Construct 19.

The correlations between the elements and Construct 19, Boring, show that at Northover Schools the teachers judge Element G, Nursing, to be most negatively associated with Construct 19, Boring, and all the pupil groups except the group who intended to leave judged Element E, Armed Forces to be most negatively associated with Construct 19. The group who intended to leave favour Element D, Engineering Apprenticeship, above all the other Elements on this construct. At Southover School the teachers judged Element G, Nursing, least associated with Boring and all the pupil groups except those who intended to leave judged Element E, Armed Forces, least Boring. Those who intended to leave favour Element G, Nursing, as least boring.

Chapter Summary

The elicitation of elements during the first grid administration yielded 214 different job titles from a sample of 357 pupils and 180 different job titles from a sample of 66 teachers. For both samples the number of different job titles yielded was small in relation to the possible number of job titles and it therefore follows that many job titles were common to a number of respondents in each sample. An analysis of common job titles shows that the twenty most common job titles in the case of the pupils sample account for 49% of the total number of choices and in the case of the teachers sample 42% of the total number of choices. Twelve common job titles were found to be common to both lists of the twenty most common job titles for the pupils and teachers samples. The distribution of job titles across four occupational status categories for the teachers and pupils of both schools was found to be remarkably similar although when the pupils samples were divided into sub-groups of those who stayed at school and those who left important status differences became evident. Those who remained at school produced an element sample with 12% - 18% more job titles in the highest status category than those who left. This pattern was also found in an analysis of most-wanted job titles where, in the case of Northover School, those who left recorded 32% fewer occupational aspiration job titles in status category I than those who stayed. Finally, the pupils who left both schools recorded twice as many occupational aspiration job titles in status category I as were actually available in the relevant labour market.

The elicitation of constructs during the first grid administration yielded 219 constructs from the sample of 357 pupils and 215 constructs from the sample of 66 teachers. The number of constructs produced by individual pupils varied from as little as 5 to the maximum of 20 and was on average 13. The facility for generating constructs was widely distributed across the whole

spectrum of academic ability in the pupil sample. Most of the teachers managed to generate the maximum number of 20 although some reported extreme difficulty with the last few elicitations. A large number of constructs were found to be common in and between the pupils and teachers samples. In the pupils samples the ten most popular constructs were held by at least 1 in 5 of the samples and at most by 2 in 3. In the teachers samples the ten most popular constructs were held by at least 1 in 4 of the samples and at most by 1 in 2. No less than 13 constructs were found to be common to both lists of the 20 most popular constructs in the pupils and teachers samples. Consideration of popularly held teachers' and pupils' constructs not common to both samples suggests potentially important differences of 'view' as between pupil and teachers with regard to the world of work as exemplified in the element samples described earlier. Differences were also evident in the construction of the elements between the two groups of pupils from the two schools and between the two groups of teachers. A provisional and tentative interpretation of their differences is offered for consideration and discussion. It is suggested that in the case of the pupils' samples differences may be related to qualitatively different assessments of the employment opportunities open to pupils from both schools. In the case of the teachers' samples the differences may be related to school 'ethos' although it is uncertain whether particular teachers are contributing to the creation and maintenance of school 'ethos' or are merely adapting themselves to it.

The second grid administration yielded 341 usable grids from a possible 468 respondents in the pupils' samples and 78 grids from a possible 170 respondents in the teachers' samples giving response rates of 73% and 46% respectively. The specification of these second provided grids was identical so that completed grids could be aligned by element and construct so as to permit aggregation of and comparison between data from individuals and groups for experimental purposes.

Approximately half the pupils in the pupils samples were identified as leavers and just over a third of leavers were identifiable as pupils wishing to obtain jobs which were included in the element sample of the provided grids. Measures obtained from each individual grid confirmed the occupational aspirations of between 66% and 83% of this group depending on the limits selected for the interpretation of grid measures. An analysis of the first destinations in employment of the leavers from the two schools revealed that between 52% and 58% of leavers obtained jobs included in element sample of the provided grids. Again, depending on the limits selected for the interpretation of grid measures, between 45% and 65% of first destinations were predicted in the individual grids submitted by the relevant respondents.

An analysis of the saliences of each of the elements was then carried out for each of the various groups of respondents. Of special interest was Element A, Ideal Job, since this element has been introduced for experimental purposes in order to discover whether or not groups of respondents were able to define a hypothetical ideal job in any meaningful way. This analysis revealed that the concept of an ideal job was not equally well defined for the various groups. It was most clearly defined for both groups of teachers for whom Element A accounted for at least twice the amount of variation recorded for any other element with the exception of Nursing. Among the pupils the pattern was the same for both schools. The concept of an ideal job was more meaningful to the pupils who stayed than those who left as shown by the fact that stayers recorded almost three times as much variation on Element A as the leavers. The same was true for those whose intention was to leave or stay but the uncertain groups were found to be in an intermediate position. Finally it was noticeable that all the groups from Southover school recorded less variation on Element A than the equivalent groups at Northover school. The highest saliences among the other elements were recorded for Elements G, B, and H Nursing, Shop Work, and Factory Unskilled the pattern

being more or less consistent across the various group in the two schools. Element D, Engineering was among the least salient elements for all groups.

The saliences of all the elements for the total sample of 419 respondents were also calculated on a construct by construct basis. This procedure gives what amounts to a popular view of all the job titles. That these popular evaluation of all the elements in terms of all the constructs were so entirely in accord with expectations derived from common sense implies substantial face validity of the research instrument. The popular idea of an ideal job attaches great importance to the qualities, high pay, intrinsic interest, high status academic, qualifications, professional, and creative. In the popular mind Nursing comes closest to the ideal job except on the dimensions of pay and creativity whereas Engineering fails to score well on the main concomitants of an ideal job with the possible exception of creativity.

An analysis of the utilisation of the constructs was undertaken for each of the following sub groups, the teachers of each school, those pupils who left and those who stayed at each school. The main object of this analysis was to obtain a measure of the effectiveness with which the pupils evaluated the elements against the teachers constructs as compared with their own and to determine the effectiveness with which the teachers evaluated the elements using their own constructs as compared with those of the pupils. It was expected that the pupils would be able to employ the teachers constructs less effectively than their own. It was found, as expected, that all groups performed consistently better on average using the pupils' constructs as compared with the teachers! The teachers from both schools performed better with rare exceptions than both groups of pupils and the pupil leavers performed substantially worse than the pupil stayers. Finally, all groups from Southover School performed worse than the equivalent groups from Northover School.

The remaining analyses and display of results for each of the various sub-

groups consist of the resolution of group data into their principal components of variation, the construction of group psychological maps, and tabulations of complete sets of relationships between the elements and constructs. The results show a remarkable consistency in that for each group grid the first two principal components account for approximately 70% of the total variation recorded. The first component accounts for between 40% and 50% and the second for between 24% and 30% in each case. There is a similar tendency in both schools for the first component to account for less variation in the pupils' groups than in the teachers' groups and less among the pupils who leave school than among those who stay. Where the first component accounts for relatively less variation the second and third components account for relatively more.

The first component is characterised by high loadings on constructs which refer to remuneration, status, skill level, qualifications, and intrinsic interest. The second component is characterised by high loadings which refer to work attributes such as whether the work is inside or outside, manual and physical, dirty, working with machinery, and concerned with and end product. A third component is quite well defined accounting for between 8% and 13% of variation and this component is characterised by high loadings on the 'people' constructs i.e., working with people, helping people, selling, and personal contact.

An examination of the composite diagrams or psychological maps provides visual confirmation of some results already established and also new information. For example the salience of particular elements, which is related to the sizes of their sums of squares, manifests itself in the maps as distance from the origin of the two axis. Thus for the Northover and Southover Teachers and those who stayed and who intended to stay at Northover School Element A, Ideal Job, is farthest from the origin and therefore the most salient element. For all other groups Element G, Nursing is the most salient. The position of Element A, Ideal Job, helps to define the positive pole of

the first component. The most salient element nagatively evaluated for all groups without exception is Element H, Factory Unskilled. The proximity of an element to Element A indicates its closeness to the ideal for the group concerned. Thus for the teachers of both schools and the pupils who stayed or who intended to stay only Element G Nursing comes close to their Ideal Job. For those pupils who intended to leave Elements D and E, Engineering and Armed Forces are closest to their Ideal Job. The maps also indicate how elements are grouped together. Two dyads are clearly discernible for most groups, Elements I and K, Builders Labourer and Farm Worker, and Elements H and L, Factory and Warehouse Work. A triad including Elements BCJ appear clearly in most grids indicating that Shop work, Clerical work, and Office work have been grouped together. The maps show not only the position of elements singly and in groups in relation to each other but also their location in a particular construct system. The first two principal component axes also provide a co-ordinate system for the constructs although the individual constructs have not been plotted for the sake of clarity. Finally it seems that only Elements D,E,F,G are positively evaluated by the groups and indeed are more positively evaluated by the pupils who left or who intended to leave school than either those who stayed or who intended to stay, or the teachers.

The tables of complete sets of relationships reveal yet more information about how the elements are construed by the various groups some of which information is not revealed in the composite diagrams because these represent only a two dimensional slice of a multidimensional space. For example, from a table of correlations between Element A, Ideal Job, and all 20 constructs for each group shows that Element A correlates highly with Constructs 4, 7, 8, 9, 13, 15 and 19, the constructs which define the first component. But this table also shows that the correlation between Element A and Construct 8, Academic, is noticeably less for the pupil leavers than for the other groups. The same is true for the correlations between

Element A and Construct 19 for those pupils who intended to leave as compared with those of other groups. Apparently pupils who leave school do not associate an ideal job with academic work nor with a high level of intrinsic interest. Other differences are worth noting. For example, for all the pupil groups Element A correlates more highly with Construct 6, High Pay, than for the two teachers groups. Also, for the two teachers groups, Element A correlates more highly with Constructs 2, 10, and 16 than for the pupils groups. Apparently high pay is more important in the pupils' idea of an ideal job and working with people, helping people, and personal contact are more important in the teachers idea of an ideal job. A similar pattern of differences occurs with Construct 5 where different correlations with Element A imply that Creativity is a more necessary component of an ideal job for teachers than for pupils. The table showing the correlations between Element A and all the other Elements for every group establishes beyond a doubt that only Elements D, E, F, & G correlate positively with Element A in other words only Engineering and Hairdressing Apprenticeships, the Armed Forces, and Nursing are considered favourably in relation to a hypothetical ideal job by all the groups. This table also shows that Element D, Engineering is closest to Element A, Ideal Job, for pupils who intended to leave school and that for all other groups Element G, Nursing, is closest to their ideal. The remaining results simply show that within the group of positively evaluated elements or job titles these elements stand in different relationships to each other according to their different evaluations in relation to different constructs by different groups.

CHAPTER SEVEN

Summary and Discussion

The present study was prompted by a number of general questions such as "Why do so many youngsters leaving school possess attitudes to work that make them unfit or unsuitable for employment ", "Why are insufficient appropriately qualified school leavers opting for engineering as a career ", "Do school teachers have a determining influence on school leavers and steer them away from industrial and more towards service occupations ". These general questions led the researcher to begin a study of the school/work interface which generated yet further questions, for example "Do we have an adequate theoretical understanding of how school leavers choose their occupations ", "Is the current orthodoxy in vocational guidance and counselling based on sound theoretical and methodological principles "It was argued in Chapter I that the answers to such questions are urgently needed because of the likely link between the nation's declining economic position and inefficient utilisation of human resources together with the mounting cost of the enormous variety and scope of school/work interface activity at every level from the intervention of government departments through the local government system down to the level of individual institutions in industry commerce and education. The aims of the research reported here were therefore threefold.

It would have been absurdly overambitious to attempt to find answers in full to questions of such bewildering complexity. The first aim of the research was therefore to find or construct a theory and methodology that might lead to answers to these questions. The second aim was to carry out a theoretical and methodological field trial to determine whether the theory and methodology chosen were suitable and effective for inquiring into precisely these questions. The third aim, which was dependent on the satisfactory outcomes of aims one and two,

was concerned with elucidating partial and tentative answers to some of the questions raised.

The theoretical position adopted follows Kelly who stated that a person's "processes" are psychologically "channelised" by the ways in which he anticipates events, that a person anticipates events by "construing" their replications, that persons differ from each other in their construction of events, that each person characteristically evolves for himself a construction system, that a persons construct system is composed of a finite number of dichotomous constructs, that to the extent that one person employs a construction of experience which is similar to that employed by another, his psychological processes are similar to those of that person, and that to the extent that one person construes the construction processes of another he may play a role in a social process involving the other person. These tenets are known as the fundamental postulate and the construction, individuality, organisation, dichotomy, commonality, and sociality corollaries which are listed elsewhere in the thesis. The main object of inquiry, the occupational choice process, was peculiarly well suited to testing the theory. It would be difficult to imagine a more appropriate object of inquiry because in the case of occupational choice the experience of occupational role for the sample of school leavers who were the subjects of the inquiry is, with rare exceptions, in the future and it is therefore clearly the anticipation of this experience which was studied here. The evidence of the results obtained in the first grid administration is overwhelmingly in support of the individuality,organisation, dichotomy and commonality corollaries. It is clear beyond a doubt that the 357 pupils and 66 teachers who responded to the first grid administration construe occupational roles by means of personal constructs which may be elicited in relation to an element

sample of occupational roles, that respondents differ from each other with regard to the constructs they employ, that respondents employ a finite number of constructs which are dichotomous, and that some constructs are common to a number of respondents. The evidence of the results obtained in the second grid administration is overwhelmingly in support of the fundamental postulate and the construction corollary. Measures of inter-element distances in a psychological space defined by the constructs were obtained for each individual and it was thus possible to identify occupational titles closest to the ideal for every respondent. For a sub sample of respondents, elements closest to their ideals were identified and compared with occupational aspirations elicited independently and it was found that the grids confirmed between 66% and 83% of occupational aspirations depending on the limits selected for interpretation. For another sub-sample of respondents, elements closest to their ideals were identified and compared with first destinations in employment where a correspondence of between 45% and 65% was found indicating that where it was possible for school leavers to obtain occupations of their choice the predictive performance of the grid was better than 1 in 2. These results are more remarkable because the experimental necessity for supplying a common grid to the samples to some extent violates the theory and, in particular, the individuality corollary. Such a grid only taps psychological functioning along dimensions established to have been common to the sample as a whole and ignores those dimensions unique to particular individuals. It may be confidently expected that grids that do justice to both common and unique aspects of psychological functioning will perform even better than the provided grids reported here and, indeed, that has been the experience of the researcher when using such grids in the clinical

situation (Willis-Lee, 1980).

Before progressing any further in this discussion it is necessary to comment on the validity and reliability of the grid and the measures obtained. The concept of validity is problematic when applied to grids. The grid is not a test but an interviewing device designed to reveal patterns and relationships in data collected by its use. The validity of the numerical techniques through which such patterns and relationships may be revealed has been well established within a long tradition of scientific research. However the validity of such procedures when applied to grids can only be discussed with reference to the meaningfulness of what is revealed to the subject and, perhaps, to the researcher. Within a personal construct theory framework the proposition that we attach meaning to our experience of the world entails the proposition that there are relationships between our constructs. It is now clearly possible to apply the same numerical techniques as were formerly applied to data from populations of subjects to the "population" of items or responses obtained from a single subject.

With the aid of these techniques it is possible to demonstrate to a subject the patterns and relationships in his or her grid and in so far as these patterns and relationships are a direct consequence of the subject's responses this must be regarded as an intrinsically valid exercise. But the crucial question of validity really hinges on the extent to which the patterns and relationships in the subject's grid are conterminous with the meanings he or she actually holds in relation to a set of objects i.e., with his or her personal reality. To discover the validity of the grid exercise in these terms implies that it is necessary for comparative purposes to discover the personal meanings of the subject by another route. This is more easily said than done and,

in any case may begin the whole problematic process of data collection, measurement, inference, and validity over again leading to a profitless circularity. A possibly more profitable alternative is to infer the subject's meanings from another kind of data such as his or her observable behaviour. For example, with regard to the studies reported here, if a subject states that he wishes to become an engineering apprentice and then completes a grid with twelve job titles and twenty constructs which shows that the job of engineering apprentice is closest to his ideal of a job we are surely entitled to say that the grid exercise was valid and to attach some real importance to the relationships shown in it. Alternatively, if a subject completes a similar grid that shows the job of nurse to be closest to her ideal of a job and then enrolls as a nurse we are entitled to claim validity for the grid procedures and with justification to give attention to the relationships demonstrated within it. The studies reported here do, in this sense, establish an encouraging level of predictive validity for the grid technique. Kelly himself stated that validity refers to that capacity of an instrument to tell us what we already know. Following on from this argument it is worth recording that other tests reported here imply a high level of face validity for the grid technique used. For example, the construct by construct analysis giving a popular view of the elements for all the respondents in the study yielded results that were wholly in accord with commonsense expectations of how the various job titles would be evaluated in relation to the various constructs. Also, the group psychological maps are substantially consistent in the ways in which groups of respondents have evaluated job titles with similar characteristics which have thereby become similarly grouped together within the psychological space of groups of subjects as represented by the close

proximity of certain elements one with another in the maps. The measure of the validity of the methodology employed here, it may be argued, also depends on the extent to which it has successfully enabled elements of theory to be defined in operational terms and tested. A measure of validity may also be related to the extent to which the methodology used enables us to enlarge, extend, and re-organise our own construction of the events and phenomena with which the research has been concerned and whether any resulting new modes of thinking constitute an effective basis for successful action in relation to the issues and individuals that have been the object of this study. Self-evidently all these aspects of validity, intrinsic, predictive, face, theoretical, cognitive , and utilitarian are closely interrelated and it is difficult if not impossible to conceive of any pursuasive comprehensive measure of validity that could be adduced in support of the theory and methodology used in this research. A judgement is called for on the basis of the evidence presented, evidence which the writer suggests provides an indication of validity sufficient to justify the research effort and a continuation of further research along similar theoretical and methodological lines. Kelly illuminates but does not wholly dispose of the problem when he writes

> "Accurate prediction, then, can scarcely be taken as evidence that one has pinned down a fragment of ultimate truth, though this is generally how it is regarded in psychological research. The accuracy confirms only the interim utility of today's limited set of constructs. Tomorrow's genius will erect new domensions, open up unsuspected degrees of freedom, and invite new experimental controls.
>
> And yet, however useful prediction may be in testing the transient utility of one's construction system,

> the superior test of what he has devised is its capacity to implement imaginative action. It is by his actions that man learns what his capabilities are, and what he achieves is the most tangible psychological measure of his behaviour. It is a mistake to always assume that behaviour must be the psychologist's dependent variable. For man, it is the undependent variable"
>
> (Kelly, G. 1969)

The issue of reliability may be disposed of more expeditiously and with fewer qualms. The term reliability when applied to scientific research seems to have two meanings. It may mean the capability of an instrument to measure some characteristic in a subject or group of subjects "reliably". It may also mean the capacity of an instrument to produce the same measure for the same subject or subjects when administered repeatedly under similar conditions. Eysenck says ...

> "There are two forms of reliability which determine the excellence of a scale: repeat reliability (test-retest) and split half reliability (consistency)"
>
> (Eysenck, H. 1964)

The idea of a test producing the same result as a retest with the same or similar subjects may not seem strange to trait psychologists where it may be assumed that a particular characteristic for a given subject is relatively unchanging over time. However, generally the idea of a static mind may be regarded as absurd and in relation to the model of man the scientist proposed by Kelly in his theory of personal constructs the idea represents a contradiction in terms. In Kelly's theory man is not a concatenation of traits but a scientist and inventor struggling to

make sense of the world and of his experience of it.

> "A scientists inventions assist him in two ways:
> they tell him what to expect and they help him
> to see it when it happens .... Moreover, without
> his inventions, both theoretical and instrumental,
> man would be both disoriented and blind. He
> would not know where to look or how to see"
>
> (Kelly, G. 1969)

According to Kelly man is not static but in motion with the world, its phenomena and events, fully mobilised to inquire into the present and reach out for the future. The notion of change is integral with the theory which, among other things is concerned with the explanation of psychological change.

We may dispose of the first meaning of reliability as the capacity of an instrument to produce measures which are "reliable" in the sense of authentic as this has been dealt with under the discussion of validity. We may dispose of the second meaning of reliability as stability, the capacity of an instrument to replicate similar measures with similar subjects under similar conditions because the notion that there are stable characteristics which can be measured reliably in this sense is antithetical to personal construct theory. Kelly himself described reliability as "that characteristic of an instrument which makes it insensitive to change". We are thus left with the concept of reliability as consistency. If this concept of reliability is applied to the results of this study it is reassuring to note that in all the data and results recorded in the previous chapter the pattern of relationships established for a sample from one school is replicated almost identically in the second school. The test showing the performance of the teachers and

pupils using each others constructs may be cited as one of many possible examples. Athough this does not amount to a split half reliability study in the strict sense it is a simple test of reliability conceived as consistency and as such lends further evidential support toward the value and utility of the instrument and its associated procedures.

Having established an indication of validity and reliability for the theory, methodology, and results obtained it is now possible to discuss what these results actually tell us in relation to the questions originally posed at the commencement of the research.

From the evidence of this research it has become feasible to view the occupational choice behaviour of school leavers in terms of personal evaluation of a finite personal sample of reference points drawn from the world of work (elements) in relation to a finite number of personal dimensions or criteria (constructs). Individuals operate with different samples of reference points although some are in common use. The same is true of the criteria used to differentiate the reference points. In addition to differences with regard to the occurence of reference points and criteria within and between individual microcosms there are differences in the saliences of both reference points and criteria within and between individuals. There are also differences in the relationships between the evaluation of different reference points and in the relationships between one evaluation and another of all the reference points. It is the totality of the interaction between the personally selected and composed samples of reference points and criteria between their different saliences, and between their various internal relationships that accounts for the uniqueness and idiosyncracy of the occupational choice behaviour of any particular individual. This highly

complex process is not as unfathomable as the foregoing description might suggest. For example the 357 school pupils who participated in this study are together operating on a sample of only 180 job titles and 219 constructs. As few as 20 job titles accounted for 49% of all job titles used and the number of constructs used by an individual may be as few as 5 and is unlikely to exceed more than about 20. A principal components analysis of the evaluations of a large sample of over 400 individuals reveals three main axes of variation embedded in all the individual evaluations. Together they account for approximately 80% of all the information recorded in the grids. The first axis is outstandingly the most important and refers to remuneration, qualifications, skill level, amount of interest and status. The second axis refers to characteristics such as inside or outside, manual, physical, dirty, working with machinery, and concerned with an end product. The third axis refers to personal contact, working with people, helping people and selling. The third axis is the least important. The production of components or factors provides a useful statistical summary of the data and a kind of global or "birds-eye" view of the processes it represents but of course, as this research demonstrates so clearly, it is in the minutiae of individual perceptions and evaluations that the important determinants of occupational choice are to be discovered and upon which the actual behaviour of individuals is founded.

Some writers have argued that occupational choice involves a maximising process by means of which a best possible option is systematically sought in the light of an increasing realism concerning such opportunities as are actually available. Others have argued that occupational choice involves the implementation of a self-concept in the work role. The idea of an ideal job is not far removed from these two

ideas and was introduced into the second grid as Element A. The analysis of inter-element distances, particularly the distance of all elements from Element A was the basis of the confirmation of occupational aspiration study as well as the prediction of first destinations in employment study. The results were encouraging and consequently it becomes plausible to suggest that a meaningful aspect of the occupational choice process for the sample of school leavers used here is what may be termed a leading fantasy which informs and guides job search and work experience. This leading fantasy was not equally well defined for all groups. It was best defined for both groups of teachers. It was better defined for pupils who wished to stay at school than those who wished to leave and better for those who did stay than those who left. It might have been expected that this leading fantasy was least well defined for those uncertain pupils who were not sure whether they were seeking employment or not. In fact the uncertain pupils occupy an intermediate position between the stayers and leavers. It was noticeable that for all the pupil groups in Southover School the leading fantasy was less well defined than the equivalent groups at Northover School. It is perhaps unsurprising that the teachers with their experience of occupational role should have more developed leading fantasies. However the differences within and between the pupil groups of the two schools are of concern because the differences are aligned with differences in socio-economic status. Early leaving has been clearly shown to be linked with lower socio-economic status and it is the pupils who leave who have the least developed leading fantasy about the possibilities of occupational role. Northover School is well situated in comfortable socio-economic surroundings and Southover School is situated in an educational priority area. The pupils of Southover School have a less developed leading

fantasy than those at Northover School. It seems that lower socio-economic status and the kind of cultural poverty identified by government reports which led to the creation of educational priority schools is matched by a poverty of the imagination in thinking about work which may reduce the perception of the possibilities of personal fulfulment in work for a group who, becoming progressively more socially, culturally, and economically disadvantaged cannot attain a level of self-actualisation (Maslow, 1943) for want of the imaginative flight of fancy that is necessary to free them from their predicament. The most depressing feature of this situation is its self-fulfilling and self-reinforcing circularity.

It is those school leavers who leave at the earliest opportunity and enter employment or the labour market whose attitudes to work have given greatest cause for concern. An attitude can be defined in various ways but a common feature of many definitions is the notion of a variable that intervenes between perception and action. The theoretical and methodological perspective adopted in this research and the discussion of results so far is intended to help to explain the operation of such a variable. In particular, the discussion above of occupational choice process and the importance of what has been called a leading fantasy goes some way towards explaining how young employees may find little joy or reward in employment. They may have a poorly developed construct system and lack the means of construing and attaching meaning to their experience. They may have idiosyncratic requirements of a work situation which are not met in a particular job. For example an employee for whom the construct "Working with animals" is most salient may not be happy working in a canning plant. Or they may lack a leading fantasy, the imaginative ability to relate their work experience to

something deep within themselves which brings their experience of work and their idea of work together into some kind of unity which is possibly something close to the opposite of alienation. The implications of these arguments range over an area that is wider than the occupational choice process itself and penetrates the crucial area of motivation. The explanations offered here suggest serious impediments to the full mobilisation of personal resources in the work situation, what Maslow term "self-actualisation". It is probably here that the explanation of unfitness and unsuitability for work among young employees as seen by employers is to be found. This research offers a means by which the determinants of unfitness and unsuitability may be discovered and understood.

The question as to whether teachers have an influence over pupils' views of occupational opportunities and choices was also addressed. Within the theory and methodology adopted the means of tackling the problem is through the sociality corollary which states ...

> "To the extent that one person construes the construction processes of another he may play a role in a social process involving the other person"
>
> (Kelly, 1955)

Through this research we have followed the argument advanced in earlier studies of the meaningfulness of "personal" as opposed to "provided" constructs that meaningfulness is related to the discriminatory power of a construct. This is measurable as the amount of variation a construct of particular interest contributes to the total recorded in a grid. (Isaacson and Landfield, 1965). It follows that this same measure can be used to compare the effectiveness with which different individuals or groups utilise particular constructs in relation to the same set of

elements. This is the method adopted here and some useful insights have emerged. It is necessary first of all to state that there are important differences between the teachers' and pupils' constructions of the sample of job titles used in this study. Evidence for this statement derives from the fact that each of the two groups employ constructs not apparently shared by the other. Also the two groups attach different levels of importance to certain important constructs in the evaluation of what constitutes an ideal job and to a lesser extent in the evaluation of all the jobs. Nevertheless two sets of relationships have emerged that are potentially of importance in relation to the question posed. The first is that the pupils who wished to stay at school and those who stayed are better able to utilise the constructs specific to the teachers' samples than the pupils who intended to leave or who did leave. The second is that the pupils who wished to stay at school and those who stayed are closer in their evaluation of an ideal job and of the other jobs to the teachers' evaluations than those intending to lave or who left. This is a long way from saying that teachers' influence pupils who, for whatever reason, remain at school but can be said in that insights gained in this research suggest a process and a mechanism by means of which such an influence can take place. The proposition that teachers influence pupils toward their own view of employment opportunities implies the existence of a mechanism through which such influence can occur. The results of this research go further than implying the existence of a mechanism, they demonstrate that such a mechanism does exist.

Not at any time during the conduct of this research has it been possible to follow up all the interesting and potentially fruitful lines of enquiry that have from time to time suggested themselves. Neither

would it be possible to exhaust the information contained in a single grid, least of all in a large number of grids. It follows that the results and analyses have been presented selectively in so far as they bear closely on the central questions of the research. To have done otherwise would have been to allow the thesis to stray out of bounds on numerous occasions which is undesirable in itself, outside the resources of a single researcher, and both exhausting and confusing for the reader. This problem was most evident in the studies of popular and group images of the occupations used in the element sample. The data collected and the analyses of it permit a detailed investigation of popular and group images of occupational titles but only one of these, which is central to the research interest, will be used for illustrative purposes, the engineering craft apprenticeship.

The question of why insufficient numbers of appropriately qualified school leavers were not choosing engineering as a career had pre-occupied the engineering industry for some time when the research was begun. Of course the answer lies to a great extent in the issues already raised in the explanation and discussion of the process of occupational choice. Quite simply large numbers of appropriately qualified potential school leavers either chose to remain at school or to leave school and take up something else. But many pupils at the crucial time of decision were uncertain whether or not to leave school. Many of the uncertain pupils were of good academic ability and, in terms of the occupational psychology studied here, are more or less consistently in an intermediate position between the stayers and the leavers. There would seem to be a substantial pool of young people at the time of leaving school who could be influenced towards engineering as a career. If such influence could be brought to bear it might ensure the necessary level

of good quality recruitment to the industry without the necessity of a frontal assault on such attitudes of the teaching profession as are surmised to be influential in the minds of school pupils and inimical to the interests of the engineering industry. Various influence strategies are already underway as was explained in Chapter I . This research suggests that any strategy, if it is to be successful, should take account of the following findings. At the level of group images as portrayed in the psychological maps and correlation studies only those pupils whose intention was clearly to leave school perceive an engineering craft apprenticeship as close to an ideal occupation. For those who actually left, for the uncertain pupils, for those who intended to stay or who stayed, and for teachers, engineering becomes further and further removed from the idea of an ideal occupation. Secondly, the evaluation of the occupations by the whole sample of teachers and pupils construct by construct makes it very clear that in the "popular" mind engineering falls far short of an ideal occupation on those very constucts which define a popular ideal occupation. Of course it is recognised that these statements purporting to refer to popular images of occupations are based on data collected only from teachers and pupils but of course this is the appropriate population, limited as it may be, upon which to base such statements because of the close proximity of potential recruits to the engineering industry to other pupils and to teachers within the education system. An ideal job is popularly defined in relation to such qualities as high pay, intrinsically interesting work, high status, academic, professional, qualifications required, and creativity. Only on creativity does engineering score reasonably well. Anyone in the engineering industry interested in reshaping the public image of the industry would do well to examine the uniformly popular image of nursing which scores highly on all the popular

adjuncts of ideal occupation with the exception of high pay and creativity. No objective validity is claimed for these findings because they refer to what people believe. There may well be a gap between individual, group, and popular perceptions of either nursing, engineering, or both in relation to what in a more objective sense is in fact so. An influence strategy would need to be concerned with such a gap but it is more likely that such a strategy would need to be concerned more with attempting to bring about attitudinal change. From the perspective of this research a programme of attitude change would involve collecting constructs from the target population in order to understand existing attitudes, floating new constructs to encourage the elaboration and extension of existing construct systems in the target population, and loosening up existing construct systems to free the target population from previously held fixed modes of thinking and to encourage construct reshuffles in the direction of constructions more favourable to the purposes of the intervention. To some extent this is the unspoken, unacknowledged, theoretical basis of many existing influence strategies mounted at the school work interface. The results of this research are sufficiently encouraging to justify putting the theory and methodology described forward more explicitly not only as a means of understanding the problem of attutide change and planning interventions but also as a means of evaluating what, if anything, is being achieved in these kinds of interventions which usually involve substantial resources and costs.

Fin ally, general comments about the transition from school to work arising from analyses of group data collected in this research are somewhat depressing. For example the status distribution of occupational aspiration among school leavers as compared to the status distribution of jobs in the relevant labour market implies that large numbers of school leavers are looking for employment opportunities of a quality far in

excess of what is available. Also, only the elite occupations in the labour market such as nursing, the armed forces, and engineering or hairdressing apprenticeships, are evaluated positively by those leaving school. The remaining occupations were evaluated negatively and there was complete agreement that unskilled factory work is the least attractive of all the options although clearly a very large number of school leavers are destined for just such an occupation. The situation is not totally depressing however because the research also shows that at the individual level large numbers of school leavers do identify with a wide range of available occupations, do perceive these to be close to their own ideal, and do succeed in obtaining occupations of their choice. For those many school leavers for whom this is not so the theory and methodology tried and tested here provides an opportunity and means of enquiring into why this is not so, into the extent to which it is not so, and also provides the possibility of authentic insights into the occupational psychology and behaviour of individuals upon which appropriate remedial action can be based. This brings the discussion into the area of vocational assessment, guidance, and counselling which will be discussed later.

Final reflections follow two paths, the first concerned with the connections between and implications of this research in relation to previous research, the second concerned with the implications of this study in relation to contemporary issues and future research activity.

At first glance it may seem that the present study hardly relates or is even at variance with many of the main studies in the field described in Chapter 2. For example the argument presented here that young peoples' occupational choice behaviour is a function of the way in which they anticipate events seems quite different from the argument advanced by Ginzberg that these choices are a function of young peoples'

biographies. What is the connection between the former future oriented approach as opposed to the latter historical or developmental approach? Applying what has been learned during the present study may provide valuable new insights into Ginzberg's work. For example, the progress of an individual through the various developmental "stages" suggested by Ginzberg becomes explainable psychologically as the continual extension, elaboration, and differentiation of personal construct systems within the "range of convenience" covering the domain of work. In relation to Super's work which emphasises the development and implementation of a self-concept in work the present study offers for consideration the idea of the "leading fantasy" or "ideal" job. In so far as these ideas only make sense from a unique personal viewpoint they do not seem far removed from the idea of a self-concept. This study shows how it is possible to demonstrate the existence of such a self-concept, measure the intensity with which it is held, measure its importance in a personal construct system, and measure its significance in terms of self-other relationships. This research also bears usefully on those many studies that have concentrated on the socialisation process as a means of explaining occupational choice. Although the present study is opposed to this explanation of human behaviour it nevertheless provides the means by which these arguments may be sustained. In construct terms, playing a part in a social process implies the ability to construe the construing of others. The unit of construction is the construct and it is possible to determine which constructs are held by individuals in a particular domain, how important they are, and how they are used. The theory and methodology employed here must surely therefore find a central position in any discussion of role, occupational or otherwise. Perhaps the most useful connection is between this study and those studies that have been

concerned with the subjective experience of school leavers. Willis found that his samples of working class leavers made little distinction between one job and another ("its all labour"). The present study implies that school leavers have a relatively poorly developed leading fantasy against which to evaluate the opportunities open to them and, also, that a large proportion of these youngsters have a view of the world of work that is predominately negative. Haystead and Ashton were concerned with the "awareness contexts" and "frames of reference" held by young people which helped to smooth the transition and make the necessary adjustment to work. The present research has not only provided further evidence for the existence of what have been termed awareness contexts or frames of reference at the individual level but also furnishes the necessary psychological theory and methodology with which to explain and measure their structural and operational properties. Some of Ashton's writing has a familiar personal construct flavour....

> "For example, one sheet metal worker took his job because, as he said, 'I like working with metal'; an apprentice electrician entered his trade because 'I was good at electrical wiring at school'; and many of those who enter the building trade do so because they want to work outside"
>
> (Ashton, 1975)

Finally, there are probably three or four main areas of future research and development activity to which this study can make a useful contribution or at least act as a starting point. Firstly, there is much to be done in purely academic research into human behaviour. For example we do not yet know how individuals acquire their constructs or how these are transmitted socially and culturally. Collateral socio-

metric data collected alongside the data used in the present study is currently being analysed by the writer and may reveal possible lines of research into this subject. Also, although improving techniques of data analysis enable us to obtain more and more potentially valuable insights into human psychological functioning the psychological and behavioural significance of some of the mathematical and statistical properties of grids, for example, are often far from clear. A weakness of the present study is that once the data was collected the major work on this data was carried out at a remove from the original subjects. This was absolutely necessary and inevitable but what is now desirable is for similar studies to be carried out where the researcher remains in contact with the research subjects and can go back to them time after time if necessary to check and double check the meaning and significance of his or her findings. Further, there is a need for studies to inquire into the personal construct characteristies of different socio - economic and occupational groupings. Measures along key personality variables are now available for a wide range of occupational groups (Eysenck, 1964) and there is no obvious reason why element and construct banks drawn from different populations cannot be assembled and important grid relationships for different groups tabulated. There is every chance that a related series of such studies of different occupational groupings would substantially advance our knowledge of occupational psychology. Regional studies carried out in relation to different labour market features would be similarly valuable.

A second area of furture reseach and development is implied in the area of vocational assessment, guidance, and counselling. The present research offers a new approach and a new instrument both of which need further testing and refinement. A major drawback of grids as a vocational assessment and guidance took is that presently a high price has to be paid

for the information obtained. Grid preparation, data collection, analysis and interpretation of results are all extremely labour intensive although the richness and authenticity of insights gained may make the whole operation seem worthwhile. There is a need for further research into the characteristics of the instrument itself and for parallel research into how such an instrument could be incorporated into a vocational assessment and guidance system. With the new information technology including desktop Computers and almost instant data processing by means of portable terminals linked to computers with giant storage, retrieval, and data analysis capabilities, which may be miles away, it should be possible for every careers teacher in a classroom, every careers officer in the County Hall, and every personal manager in his office to operate a vocational assessment and guidance system based on a more refined version of the procedures used in this research. Industry has already shown interest in such a development and has recognised the potential of the ideas presented here not only at the level of recruitment and selection of new employees but in the re-deployment of existing members of the work force.

Chapter I explains how education and industry have been brought into a new relationship with each other, explored a variety of reasons for this development, and described briefly some of the practical consequences for both. A recurring theme throughout this discussion was criticism of the school curriculum and this is the third area to which the present study can contribute. There was the criticism that education is producing more and more ill-adapted people at increasing cost, that education suffers from a gap between its content and the living experience of its pupils, and that for the first time in history some societies are beginning to reject many of the products of institutionalised education. The results of this research suggests both the desirability and possibility

of elevating self-knowledge to a new status in the education cirriculum and in so doing furnish the means by which this gap between curriculum content and living experience of pupils may be bridged. The theory and methodology of the grid enable pupils to be presented with a picture of themselves and to explore the consequences of many of the ideas they hold and their evaluations of these ideas. Certainly as far as the vocational curriculum is concerned it is no longer defensible simply to provide pupils with information through visiting speakers, leaflets, video-films etc. and to subject them to one or two job choice or career orientation interviews a short time prior to leaving school. A fundamental rethink of the vocational curriculum is called for in which, to a considerable extent, the pupils are themselves the cirriculum. Grid methodology provides the necessary curriculum theory and classroom resources through which the acquisition and development of self knowledge can be accorded a new importance in education and the gap between educational content and living experience bridged thus ensuring better adapted people who are more attractive to society. This meets the main recurring criticisms of the education system.

Finally, this study has important implications for any serious consideration of human behaviour within the context of a manpower system. It was stated earlier that in a free society a manpower system is composed of a multitude of individual evaluations and choices. At the same time, as was argued in earlier chapters, there has been a tendency towards more manpower planning and more interventionist strategies in which large groups are often considered collectively and in which individuals appear only as instances of a type. This research has also been concerned with group phenomena and has produced statements which purport to apply to a large number of individuals within a group. But more important this research has employed a mthodology which demonstrates clearly the inadequacy of applying

knowledge derived from group phenomena to individuals. For example an individual grid can show and has shown that an individual may see things and make judgements and choices quite differently from the average member of the group to which he belongs on whom, of course, the group profile is based. This research shows the central importance of variability within individuals not just between them. It is this same variability which allows for flexibility in individual judgement, action, and response which is at the very root of mans' freedom in a free society. If this freedom is to be protected, and it is to some extent at risk from a manpower planning perspective, it must be understood. This research suggests a possible way in which this freedom operates in the occupational domain.

This study began with matters of bewildering complexity and some of these seem a little clearer at the end than they did at the beginning but the claims for what has been achieved must be modest. At the time of writing, to the best of the writers knowledge, this study represents a new theoretical and methodological initiative in the area with which it has been concerned, the results are encouraging, and the main aims of the research were achieved. But in carrying out the research extensive use has been made of a psychological interviewing and measuring device which was introduced rather like a dipstick into a pre-defined area of psychological functioning of a large number of individuals. This technique, whilst well-suited to the requirements and objectives of the study has, like all behavioural science investigations, serious limitations. Firstly, although the dipstick was carefully designed and tailored to the purpose for which it was used, there is no means of knowing whether the instrument did in fact tap all the important and relevant areas of meaning, or even the most important ones, on any particular occasion when it was used. Secondly, even if the instrument performed perfectly for the purposes for which it was used it would only,

at most, have provided an instance of data about an area of human behaviour which is not static but dynamic involving processes which are endlessly subject to revision and change. A snap-shot is a useful device for capturing an instance of data about the world but it can never be other than a snap-shot which captures nothing of the dynamic changing processes of which it is an immediately outdated sample. This study is based on a large number of snap-shots of a particular area of psychological activity from which it has been possible to learn something of the ecology of human thought. To be consistent between the theoretical and methodological position adopted in the research and the interpretation of data and results it is necessary to hold any ideas arising from the research tentatively and to test them against further research and new experience. It is only possible to speak of 'research findings' provided that this is fully understood and the word 'conclusions' has been deliberately omitted from this thesis.

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APPENDICES

APPENDIX I

(a) Introductory letter to all teachers in the two research schools.

(b) Notes for guidance in the completion of grids by teachers and blank grid.

(c) Notes for form tutors on the completion of grids by pupils.

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School of Education

Professor K Austwick
Professor W H Dowdeswell

Dear

As you probably know from last term's notice-board, the Headmaster has kindly allowed me access to the staff and pupils of this school for research purposes. This is with the full knowledge and consent of Avon Local Education Authority.

I taught for ten years, mostly as Head of Department in medium and large sized comprehensive schools in England and Scotland, before in 1976, I joined the University of Bath as a student in order to read for a Master's degree in Educational Management. I am now collecting data for a Ph.D which is, broadly speaking, concerned with the transition from school to work.

All teachers, and pupils in their last year of compulsory schooling, will be requested to participate in two or three data - collection exercises including provision of some personal information. It is not anticipated that any information of a 'sensitive' nature will be required and, in any case, all data collected will be treated in the strictest confidence. I cannot think of any possible way in which participation in this research could be to the disadvantage of anyone. On the contrary, I shall be very happy to discuss this work in detail with anyone who is interested, and teachers may find some of the ideas upon which the research is based useful in their work with pupils.

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School of Education

Professor K Austwick
Professor W H Dowdeswell

Dear

I refer to my previous letter concerning research into the transition from school to work and invite you to participate in the first data-collection exercise. All teachers in the research sites are being asked to complete a small exercise at their leisure during the half-term break. Although, inevitably, research activity entails some extra work for all concerned, teachers seem to prefer methods of data-collection which do not interfere directly with the school's normal work. This exercise takes the form of completion of a grid and can be done at any time or times at one or several sittings but it must not be discussed with anyone until after the grids have been handed in.

Notes on how to complete the grids are set out below and it is important to read these carefully and to follow the steps in the correct sequence. I shall be in school for most of Thursday/Friday to meet anyone who has any questions or worries about how to complete the grids.

Finally, this school has been carefully chosen against specific criteria in consultation with Avon LEA and we really need 100% response rate for the data to be of any use. Completed grids should be handed in to the Headmaster's Secretary as soon as possible on Monday, February 26th.

R.H. Willis-Lee

NOTES FOR GUIDANCE IN THE COMPLETION OF GRIDS

Grid Preparation

Before the grid can be completed the following preparation is necessary:

1. Tear the paper provided into 12 separate equal pieces.

2. Beginning with your own job, write down the names of 12 different jobs/occupations, one on each piece of paper. You are free to choose any jobs/occupations with which you are familiar but your choices should show as great a variety of jobs/occupations as possible.

3. Beginning with the paper on which your own job is written, turn each piece of paper over and clearly mark every piece on the back with one of the letters A, B, C, D,,,,,,,,,,,,L.

4. Finally, by using letters for identification, transfer the name of each job to the appropriate column on your grid. e.g. the paper on which your own job is written should be marked with the letter A and you will write the name of your own job at the top of column A in the space provided on the grid. When you have transferred all 12 jobs to the tops of the appropriate columns arrange all 12 pieces of paper with the jobs face down and the letters up and you are now ready to complete the grid.

Steps in Grid Completion

1. Choose any 3 pieces of paper at random and, using the letters for identification, draw a cirde in each of the 3 appropriate boxes in Row 1 of your grid. (See Specimen Grid Row 1) Turn the 3-papers over and, after carefully studying the 3 different jobs, decide in which important way 2 jobs are similar but different from the third.

2. Write down the way in which two of the 3 jobs are similar in the PAIR column of Row 1 of your grid and use the word NOT to indicate in the SINGLE column the way in which the third job is different from the 2 jobs with the important similarity. (See Specimen Grid Row 2) and Additional Notes (a))

3. You have now chosen and written on to your grid an important dimension along which all the jobs in the columns can be measured. Using a 7 point scale, rate all the jobs by inserting a score out of 7 in every box in Row 1 of your grid. e.g. on the dimension KIND.....NOT KIND a score of 7 = Extremely Kind, 6 = Very Kind, 5 = Fairly Kind, 4 = Neither Kind nor Not Kind, 3 = Fairly Not Kind, 2 = Very Not Kind, 1 = Extremely Not Kind. (See Specimen Grid Row 3 and Additional Notes (b)).

4. When you have completely scored the first Row return the 3 papers to the 'pool' shuffle all the papers, and repeat steps 1, 2, and 3 until you have completed every row in your grid. (See Additional Note (c)).

SPECEMIN GRID

	A Yourself	B Mother	C Father	D Older sister	E Younger sister	F Older brother	G Younger brother	H Grandfather	I Grandmother	J Uncle	K Aunt	L Cousin	PAIR	SINGLE
1			○			○					○			
2			○			○					○		KIND	NOT KIND
3	6	7	④	3	5	②	3	4	6	5	⑦	1	KIND	NOT KIND

N.B. The Specimen Grid is for guidance only. It uses family relationships Not jobs to show how grids are completed. Rows 1, 2 and 3 of the Specimen Grid show the 3 steps involved in completing ONE ROW. On your own grids ALL PROPERLY COMPLETED ROWS SHOULD LOOK LIKE ROW THREE ON THE SPECIMEN GRID.

Additional Notes:-

(a) Do not attempt to create antonyms in the SINGLE column - just use NOT in each case.

(b) Scoring should always be in the same direction. e.g. on the dimension UGLY.... NOT UGLY 7=Extremely Ugly, 6=Very Ugly, 5=Fairly Ugly, 4=Neither Ugly nor Not Ugly, 3=Fairly Not Ugly, 2=Very Not Ugly, and 1=Extremely Not Ugly. Thus, although it is better to be Extremely Not Ugly you only score 1 on the grid.

(c) It sometimes happens that respondents exhaust all their dimensions before they have completed their grids. If the random method looking for differences and similarities ceases to produce any new dimensions in the Pair and Single columns you may hand in an incomplete grid.

Name..... School.....

A	B	C	D	E	F	G	H	I	J	K	L	PAIR	SINGLE

NOTES FOR TUTORS ON THE COMPLETION OF GRIDS BY PUPILS

GENERAL

A normal tutorial atmosphere should be preserved as far as possible during the exercise. Strict examination conditions should not be necessary so long as pupils do not discuss the completion of grids among themselves while the exercise is taking place.

Questions on procedure can be dealt with but on no account should any help or advice be given to pupils with regard to their choices of jobs not with their elicitations of differences and similarities.

Pupils should be encouraged to try to complete the whole grid.

At the end of each session pupils should hand in their grids and place their 12 pieces of paper in the individual envelopes provided. Envelopes should be clearly marked and kept by tutors for safekeeping until the exercise is resumed the following day. Grids and envelopes can be quickly redistributed at the beginning of the next session.

At the end of the last session completed grids should be handed in to tutors with the envelopes but the pieces of paper may be destroyed. Tutors are requested to check every grid upon receipt to see that it is correctly marked with the name of the appropriate pupil.

The minimum time has been allowed for this exercise and it is essential that pupils get quickly down to work at the commencement of each completion session.

GRID PREPARATION BY PUPILS

1. The paper should be torn into 12 separate equal pieces.

2. Each piece of paper should be clearly marked with one of the letters A,B,C,D, , , , , , , ,L,

3. Turn the paper marked A over and write on the blank side the name of the job/occupation that you (the pupil) would most like to do. Turn the paper marked B over and on the blank side write down tha name of the job/occupation you would least like to do. On the remaining pieces of paper write on the blank sides the names of 10 different jobs/occupations with which you are familiar. These choices should show as great a range of jobs as possible. It is not important whether you like or dislike these jobs nor whether you are personally qualified to do them.

4. Finally, by using the letters for identification, transfer the name of each job to the top of the appropriate column on your grid. Be extra careful to ensure that the job you would most like to do appears at the top of column A, and that the job you would least like to do appears at the top of column B.

   When you have transferred all 12 jobs on to your grid arrange the pieces of paper with the jobs face down and the letters face up and you are now ready to complete the grid.

Steps in Grid Completion

1. Choose any 3 pieces of paper at random and, using the letters for identification, draw a circle in each of the 3 appropriate boxes in Row 1 of your grid. (See Specimen Grid Row 1) Turn the 3-papers over and, after carefully studying the 3 different jobs, decide in which important way 2 jobs are similar but different from the third.

2. Write down the way in which two of the 3 jobs are similar in the PAIR column of Row 1 of your grid and use the word NOT to indicate in the SINGLE column the way in which the third job is different from the 2 jobs with the important similarity. (See Specimen Grid Row 2) and Additional Notes (a))

3. You have now chosen and written on to your grid an important dimension along which all the jobs in the columns can be measured. Using a 7 point scale, rat all the jobs by inserting a score out of 7 in every box in Row 1 of your grid. e.g. on the dimension KIND.....NOT KIND a score of 7 = Extremely Kind, 6 = Very Kind, 5 = Fairly Kind, 4 = Neither Kind nor Not Kind, 3 = Fairly Not Kind, 2 = Very Not Kind, 1 = Extremely Not Kind. (See Specimen Grid Row 3 and Additional Notes (b)).

4. When you have completely scored the first Row return the 3 papers to the 'pool shuffle all the papers, and repeat steps 1, 2, and 3 until you have completed every row in your grid. (See Additional Note (c)).

SPECEMIN GRID

	A Yourself	B Mother	C Father	D Older sister	E Younger sister	F Older brother	G Younger brother	H Grandfather	I Grandmother	J Uncle	K Aunt	L Cousin	PAIR	SINGLE
1			○			○					○			
2			○			○					○		KIND	NOT KIND
3	6	7	④	3	5	②	3	4	6	5	⑦	1	KIND	NOT KIND

N.B. The Specimen Grid is for guidance only. It uses family relationships Not jobs to show how grids are completed. Rows 1, 2 and 3 of the Specimen Grid show the 3 steps involved in completing ONE ROW. On your own grids ALL PROPERLY COMPLETED ROWS SHOULD LOOK LIKE ROW THREE ON THE SPECIMEN GRID.

Additional Notes:-

(a) Do not attempt to create antonyms in the SINGLE column - just use NOT in each case.

(b) Scoring should always be in the same direction. e.g. on the dimension UGLY... NOT UGLY 7=Extremely Ugly, 6=Very Ugly, 5=Fairly Ugly, 4=Neither Ugly nor Not Ugly, 3=Fairly Not Ugly, 2=Very Not Ugly, and 1=Extremely Not Ugly. Thus, although it is better to be Extremely Not Ugly you only score 1 on the grid.

(c) It sometimes happens that respondents exhaust all their dimensions before they have completed their grids. If the random method of looking for differences and similarities ceases to produce any new dimensions in the Pair and Single colum you may hand in an incomplete grid.

APPENDIX II

Illustrative specimen teacher and pupil unique grids completed during the first grid administration.

Name HEADMASTER NORTHOVER SCHOOL

	A Teacher	B Doctor	C Solicitor	D Bank Cashier	E Chef	F Butcher	G Car Mechanic	H Plumber	I Builder	J T.V. News Reader	K Dentist	L Prime Minister	7 6 5 4	3 2 1
1	2	(7)	1	1	2	(1)	1	1	1	1	(5)	1	Medical	Not medical
2	3	5	4	(7)	1	4	(3)	2	3	4	5	(6)	Money	Not money
3	(7)	7	7	(7)	4	5	(2)	3	3	4	7	7	With people	Not with people
4	4	5	(7)	(5)	2	(2)	2	2	2	2	3	7	Involved with law	Not involved with law
5	2	(5)	1	1	(6)	4	1	1	1	1	4	(1)	Involved with diet	Not involved with diet
6	1	1	4	3	1	(1)	1	(7)	(7)	1	1	5	Housing	Not housing
7	5	(5)	7	(4)	1	1	(2)	2	3	5	3	6	Deals with human problems	Does not deal with human problems
8	4	6	(7)	4	(6)	3	(3)	3	5	4	6	6	High salary	Not high salary
9	1	1	1	(1)	3	(7)	7	7	(7)	1	1	1	Trade	Not trade
10	4	(1)	5	3	(7)	6	6	(7)	7	4	4	7	Male occupation	Not male occupation
11	7	(7)	7	(7)	2	4	2	2	3	(1)	7	4	Face-to-face contact	Not face-to-face contact
12	5	6	(6)	7	7	5	4	3	(3)	7	7	(4)	Work indoors	Not work indoors
13	(6)	2	4	2	2	2	(1)	1	1	7	(1)	7	Public performance	Not public performance
14	1	(6)	1	(1)	4	(7)	1	1	1	1	3	1	Works with bodies	Does not work with bodies
15	3	4	2	2	(2)	3	(6)	(4)	4	3	5	2	Deals with machinery	Does not deal with machinery
16	1	(1)	3	3	(6)	4	4	3	(3)	2	4	1	Easily recognised in working clothes	Not easily recognised in working clothes
17	(5)	5	4	3	2	2	(2)	2	2	2	2	(5)	Involved with morals.	Not involved with morals.
18														
19														
20														

Name STAFF MEMBER NORTHOVER SCHOOL

	A Teacher	B Doctor	C Sales Representative	D P.O. Engineer	E Garage Mechanic	F Secretary	G Bank Manager	H Nurse	I Shop Manager	J Policeman	K Architect	L. Farmer	7 6 5 4 3 2 1	
1	4	6	(1)	7	(7)	(6)	1	7	1	3	6	7	Manual skills	Non manual skills
2	7	7	2	7	7	(1)	7	(7)	(7)	7	4	4	Give public service	Non public service
3	7	2	7	(7)	7	7	(6)	7	7	7	3	(1)	Employee	Self employed
4	6	6	(7)	6	(6)	6	6	7	7	7	2	(1)	Non-productive	Not non productive
5	5	(7)	4	(2)	1	4	6	5	4	4	(7)	3	High status	Not high status
6	4	4	1	(1)	1	(7)	6	1	4	2	(7)	1	Sedentary	Not sedentary
7	1	3	1	6	(7)	1	(1)	(5)	1	3	1	7	Dirty	Not dirty
8	6	(7)	4	2	(2)	3	5	5	3	4	5	(1)	Not requiring high qualifications	Requiring high qualifications
9	3	(7)	1	1	1	1	1	(7)	(1)	3	1	1	Direct caring for health	Not direct caring for health
10	(7)	4	1	2	6	7	(7)	7	7	(1)	5	1	Confined environment	Not confined environment
11	3	1	5	(7)	7	7	2	(7)	2	7	1	(1)	Dependent on directives of superiors	Not dependent on directives of superiors
12	5	(2)	1	1	1	1	(6)	1	1	1	(7)	3	Able to influence environmental qualities	Not able to influence environmental qualities
13	6	1	7	7	7	(7)	(7)	1	7	(1)	3	1	Regular hours	Not regular hours
14	(7)	(6)	7	1	3	2	6	5	6	6	4	(1)	Information giving	Not information giving
15	1	1	(6)	1	1	1	2	1	(7)	1	(2)	4	Selling goods	Not selling goods
16	1	1	1	(1)	1	1	1	(7)	1	(7)	1	1	Uniformed	Not uniformed
17	7	7	7	(1)	1	(6)	7	(6)	4	5	7	1	Communication skills	Not communication skills
18	(7)	6	4	3	7	7	(7)	7	7	2	7	(1)	Indoor occupation	Not indoor occupation
19	(6)	1	(1)	1	1	1	1	1	1	1	(7)	2	Creative	Not creative
20	(1)	1	6	7	(7)	1	1	1	(7)	1	4	1	Consumer goods service	Not consumer goods service

Name BOY - ACADEMIC ABILITY I - - - - NORTHOVER SCHOOL - - - - -

	A Pilot	B Tree Feller	C Banker	D Electrical Technician	E Chief	F Marine Biologi	G Security Guard	H Postman	I Quarry Worker	J Dustman	K Actor	L British Leyland Worker	7 6 5 4 3 2 1	
1	6	3	7	5	4	(6)	6	5	(3)	(1)	5	3	Not clean	Clean
2	4	(1)	(7)	2	(6)	2	3	2	3	1	2	3	Working inside	Working outside
3	7	3	(6)	2	3	(6)	4	(2)	3	2	2	4	Well paid	Low paid
4	(6)	(1)	3	3	5	7	6	3	3	(2)	4	1	Variety	Not much variety
5	6	3	4	(7)	(2)	1	5	3	(2)	6	5	3	Community work	Not community work
6	3	(6)	5	4	2	(6)	7	1	3	2	(6)	3	Working with nature.	Not working with nature.
7	4	1	(7)	3	(6)	2	(3)	2	3	2	3	3	High pay	Low pay
8	5	(3)	6	2	4	3	2	(6)	2	5	(4)	1	Community action	Not community action.
9	6	3	(6)	4	2	(3)	6	1	7	4	(3)	6	Job satisfaction	No job satisfaction
10	5	3	5	(4)	3	3	1	(3)	4	3	5	(3)	Job security	No job security
11	4	(3)	3	7	2	(1)	2	6	(5)	3	4	2	Few job hours.	Lot of job hours.
12	(7)	3	6	5	5	3	(4)	4	3	(2)	5	4	Responsibility	No responsibility
13	4	6	(3)	7	5	(3)	2	6	(4)	3	2	1	High qualifications	Low qualifications
14	(5)	4	6	7	2	1	6	(4)	3	5	2	(1)	Job depends on the weather.	Job does not depend on the weather
15	(3)	7	1	(3)	(4)	2	6	5	3	4	3	5	Working with people	Working alone
16	4	6	4	4	(8)	4	(3)	2	(4)	6	2	4	Machine work	Hand work
17	3	4	(2)	3	6	(6)	6	4	3	3	(2)	7	Mental work	Physical work
18	6	(7)	5	(1)	1	1	4	(4)	5	6	3	4	Scientific	Non-scientific
19	2	1	6	7	(3)	7	3	3	2	(5)	4	(3)	Alert	Non-alert
20	(1)	5	3	4	6	(6)	7	3	(4)	5	6	2	Strenuous	Not strenuous

Name BOY ACADEMIC ABILITY 3 NORTHOVER SCHOOL

	A Farm Manager	B French Teacher	C Dustman	D Carpenter	E Headmaster	F Policeman	G Caretaker	H Shopkeeper	I Huntsman	J Vet	K Doctor	L Groom	7 6 5 4 3 2 1	
1	6	(7)	2	4	(7)	5	2	4	3	4	4	(1)	Teaching	Not Teaching
2	7	(6)	(1)	4	7	6	2	3	4	(7)	7	2	Skilled	Not skilled
3	1	7	7	1	7	6	(7)	1	1	4	(7)	(1)	Employed by government	Not employed by government
4	2	6	2	(7)	7	(2)	2	(7)	4	5	7	5	Indoors	Not indoors
5	6	7	(2)		1	6	7	1	(5)	4	(2)	3	Outdoors	Not outdoors
6	(7)	1	1	1	1	2	(1)	2	7	(7)	1	7	Working with animals	Not working with animals
7	(7)	6	(3)	6	7	6	2	4	1	(7)	7	2	Good pay	Not good pay
8	7	1	1	1	1	2	1	(2)	(7)	7	1	(7)	Working with animals	Not working with animals
9	2	2	2	(1)	4	(7)	1	1	(6)	5	4	1	Uniform	Not uniform
10	5	1	1	1	(1)	1	1	1	3	(7)	(7)	2	Medical training	Not medical training
11	(7)	(1)	1	(6)	1	1	1	1	4	5	2	2	Interesting	Not interesting
12	1	7	1	1	(7)	4	(7)	1	1	1	4	(1)	Working for schools	Not working for schools
13	(1)	(7)	7	4	(7)	4	5	6	3	3	2	3	Boring	Not boring
14	1	4	(2)	1	(7)	(7)	1	3	2	5	6	2	Helps people	Does not help people
15	(7)	1	1	1	1	1	1	1	1	(7)	(1)	5	Work on farms	Does not work on farms
16	2	3	(6)	1	3	5	1	(1)	4	(7)	7	1	T	Does not travel
17	(7)	4	(7)	(1)	4	6	4	3	4	6	6	2	Drives vehicles	Does not drive vehicles
18	(7)	1	1	1	1	1	1	1	1	(7)	1	(1)	Training	Not training
19														
20														

Name GIRL ACADEMIC ABILITY I NORTHOVER SCHOOL

	A Work in a bank	B Factory work	C Holiday Agent	D Dustman	E Lawyer	F Miner	G Aeroplane Technician	H Politician	I Hotel Porter	J Nurse	K Landlord of a pub	L Painter and Decorator	7 6 5 4 3 2 1	
1	4	(4)	5	1	(1)	1	3	7	1	6	(4)	2	High level of intelligence not required	High level of intelligence is required
2	(4)	7	2	7	4	(1)	4	4	7	(4)	7	1	Work mainly happens indoors.	Work occurs outdoors - below ground
3	4	3	(5)	5	(5)	7	5	7	2	5	7	(1)	Highly paid.	Not so highly paid
4	1	(6)	1	7	1	3	(2)	1	(6)	1	3	4	Just a job with no future	A career with the chance of promotion
5	1	2	1	(6)	1	(6)	4	1	1	(1)	2	5	Dirty outdoor work.	Clean indoor work.
6	4	4	7	6	7	(5)	4	7	(2)	(5)	6	6	Fairly highly paid	Lowly paid
7	(1)	7	4	(5)	4	7	4	4	2	1	1	(5)	Work outdoors.	Work indoors.
8	1	(5)	1	1	1	(2)	(5)	1	1	1	1	2	Involves intricate handwork.	Involves a lot of strain.
9	1	1	(4)	1	1	1	1	(2)	3	(4)	4	2	Works non 9 to 5 hours.	Works 9 to 5 hours.
10	3	3	6	5	(6)	6	4	(6)	3	4	(4)	5	Exceptionally highly paid.	Fairly highly paid.
11	7	(6)	(3)	1	2	1	3	5	3	7	(6)	3	Always works indoors.	Does not always work indoors.
12	(3)	3	3	7	1	5	(5)	1	5	5	1	(5)	Requires strong suitable clothing	Requires smart dress of reasonable choice
13	7	3	7	1.	(5)	(1)	2	(5)	4	5	3	1	Smart dress.	Working clothes
14	1	3	2	7	1	7	(4)	1	(4)	5	4	(2)	Strength needed.	Strength not needed
15	1	(4)	2	(1)	1	3	5	1	1	2	3	(4)	Makes things make things nicely.	Disposes of things
16	1	4	3	(6)	1	(6)	5	(1)	5	3	4	5	Hard physical work	Hard mental work
17	1	(1)	(6)	1	1	1	2	1	(6)	1	1	1	To do with leisure	Nothing to do with leisure
18	(4)	1	7	(1)	(4)	1	3	7	3	4	4	2	Clean work highly paid.	Dirty work fairly highly paid.
19	1	4	2	7	3	(6)	(6)	1	5	(2)	4	4	Strenuous work for men.	Less strenuous work for women.
20	1	(6)	3	(2)	2	5	4	1	1	2	2	(6)	Make things, make them nice.	Disposes of things.

Name GIRL ACADEMIC ABILITY 2 NORTHOVER SCHOOL

	A Secretary	B Sewage Worker	C Caretaker	D Gardener	E Miner	F Window Cleaner	G Painter	H Teacher	I Shopkeeper	J Council Worker	K Nurse	L Postman	7 6 5 4 3 2 1	
1	1	4	4	(7)	(7)	7	4	1	1	5	(1)	7	Outside	Not outside
2	4	6	(7)	5	5	7	(3)	2	2	(6)	5	7	Cleans things.	Does not clean things
3	(7)	3	3	5	5	3	6	(7)	3	3	7	(1)	Training	Not trained
4	1	(7)	6	5	(7)	(2)	3	1	1	2	1	7	Dirty	Not dirty
5	5	2	1	(6)	5	1	3	5	4	(6)	7	(1)	Interesting	Not interesting
6	4	6	(6)	5	5	6	6	6	(4)	5	(7)	6	Helping people	Not helping people
7	4	6	6	5	3	(7)	3	(3)	(6)	5	1	6	Boring	Not boring
8	(1)	7	5	4	(7)	5	4	1	2	2	1	(7)	Dirty	Not dirty
9	7	3	(2)	3	(6)	2	3	7	4	2	(7)	1	Hardwork	Not hardwork
10	1	4	1	(7)	7	7	(4)	1	1	(2)	1	7	Outside	Not outside
11	4	2	2	2	1	6	(7)	(1)	1	(6)	1	7	Active	Not active
12	1	5	2	(6)	5	7	(4)	1	1	(1)	1	7	Outside	Not outside
13	7	2	2	4	(5)	1	3	7	1	4	(7)	(1)	Trained	Not trained
14	(7)	1	1	2	1	3	3	6	5	5	(7)	(1)	Clean	Not clean
15	7	6	(5)	7	2	(1)	1	(7)	6	7	7	5	Safe	Not safe
16	5	1	1	(5)	1	1	1	(6)	2	(2)	7	1	Interesting	Not interesting
17	1	7	(5)	4	6	4	(5)	1	2	2	(1)	7	Dirty	Not dirty
18	(1)	6	2	7	7	(7)	4	1	1	(1)	1	7	Outside	Not outside
19	7	7	(7)	(7)	(7)	1	7	7	7	7	7	7	On top of ground	Underground
20	(7)	1	1	1	(6)	1	1	(7)	2	1	7	1	Training	Not training

Name HEADMASTER SOUTHOVER SCHOOL

	A Headmaster	B Caretaker	C Hairdresser	D Airline Pilot	E Fireman	F Bank Manager	G Librarian	H Shop Assistant	I Stockbroker	J Chef	K Garage Mechanic	L Dentist	7 6 5 4 3 2 1	
1	1	5	(7)	4	5	(1)	1	5	1	6	(6)	5	Manual skill	Not manual skill
2	1	5	(1)	7	7	(1)	3	4	1	5	(2)	1	Shift work	Not shift work
3	(7)	3	4	1	2	1	(3)	3	(1)	1	1	4	Work with children	Not work with children
4	1	1	5	1	1	1	1	1	(7)	(1)	4	(7)	Self employed	Not self employed
5	3	(1)	6	1	1	(7)	2	(7)	5	1	3	3	Handles money	Not handle money
6	(6)	6	7	5	6	6	7	(7)	2	(1)	4	7	Meets the public	Not meet public
7	7	(7)	5	(1)	4	7	5	4	6	(5)	6	6	Works in one place	Not work in one place
8	(6)	2	2	5	(1)	7	6	4	(6)	2	1	2	Sedentary	Not sedentary
9	7	(1)	4	7	4	7	6	(1)	6	5	5	(7)	Long training	Not long training
10	1	(5)	2	1	(6)	1	1	(2)	1	2	7	1	Dirty work	Not dirty work
11	7	7	1	7	7	(7)	(7)	5	(1)	7	7	2	Salaried	Not salaried
12	(7)	2	2	7	(1)	5	3	2	5	(1)	2	4	Long holidays	Not long holidays
13	(1)	4	2	7	(6)	1	1	2	1	3	6	(6)	Work with machines	Not work with machines
14	1	2	1	(5)	(7)	1	1	1	1	3	(3)	2	Dangerous	Not dangerous
15	(1)	1	(7)	1	4	1	1	3	1	1	1	(7)	Physical contact	Not physical contact
16	2	1	1	5	2	(7)	2	5	(7)	3	(3)	2	Mathematical	Not mathematical
17	1	6	7	(1)	3	1	1	3	1	(6)	(7)	5	Uses hand tools	Does not use hand tools
18	(1)	(7)	5	1	3	1	2	(6)	1	3	3	1	Unskilled	Not unskilled
19	2	7	(6)	(1)	4	1	(3)	7	1	4	3	2	Poorly paid	Not poorly paid
20	6	3	1	(1)	1	(7)	2	1	(7)	1	6	4	No weekend work	Weekend work

Name STAFF SOUTHOVER SCHOOL

	A Teacher	B Mining Engineer	C Insurance Broker	D Labourer	E Nurse	F Dustman	G Accountant	H Pharmacist	I Doctor	J Professional Soldier	K Postman	L Electrician	7 6 5 4 3 2 1	
1	(1)	4	7	1	3	1	(7)	(7)	4	1	1	5	Self employed	Employed
2	(7)	2	1	1	(7)	(1)	1	1	7	3	1	1	Vocational	Not vocational
3	5	(7)	(5)	(1)	5	1	5	6	7	5	1	5	Skilled	Not skilled
4	1	3	(1)	(7)	3	7	1	(1)	1	1	1	3	Non-manual	Manual
5	(7)	5	7	1	6	(1)	7	7	7	5	(6)	5	Clean	Dirty
6	1	(5)	(1)	6	3	6	1	2	3	(7)	5	3	Active	Not active
7	(7)	7	7	1	7	1	7	(7)	7	7	1	(1)	Professional	Non-professional
8	6	6	2	1	(6)	(1)	2	4	7	5	(1)	2	Not rewarding	Rewarding
9	1	6	6	(7)	1	7	5	(3)	4	5	5	(7)	Male occupations	Not necessarily male occupations
10	(3)	(7)	7	2	2	3	7	(6)	7	7	2	4	Well paid	Not well paid
11	(7)	(7)	4	(1)	6	1	5	5	7	7	1	3	Career structure	No career structure
12	(6)	(1)	7	7	5	7	(1)	3	3	4	7	3	Non technical	Technical
13	6	6	5	1	6	1	4	5	(7)	(5)	(1)	4	Interesting	Not interesting
14	2	(6)	(1)	7	(6)	7	1	1	2	3	2	3	Physical	Not physical
15	7	5	1	4	7	(6)	(1)	5	7	4	2	(5)	Vital	Not vital
16	6	(6)	6	1	5	1	6	(6)	6	4	1	(1)	Academic	Not academic
17	5	7	7	1	(5)	1	7	(7)	7	7	1	(1)	Valued	Not valued
18	2	(5)	5	(2)	(6)	2	5	5	6	6	2	2	Not secure	Secure
19	(7)	2	2	1	(7)	1	(2)	3	7	5	1	1	People orientated	Not people orientated
20	1	(5)	1	6	1	(7)	1	1	1	6	(6)	5	Outdoor	Not outdoor

Name__BOY_ACADEMIC_ABILITY_I_ __SOUTHOVER_SCHOOL_____

	A Programmer	B Postman	C Doctor	D Electronics Technician	E Electrician	F Accountant	G Mechanic	H Engineer	I Computer Operator	J Systems Analyst	K Clerk	L Teacher	7 6 5 4 3 2 1	
1	7	(1)	4	5	5	(4)	3	(3)	7	7	4	5	Most like to do	Not —
2	7	1	1	4	4	(4)	1	(4)	(7)	7	4	4	Computer jobs	Not —
3	4	(7)	(7)	7	7	4	(7)	7	4	4	4	4	Hands	Not —
4	4	(7)	1	2	2	2	(4)	4	1	1	2	(4)	Outdoor jobs	Not —
5	6	1	(5)	4	4	6	4	4	(5)	6	(6)	7	Writing	Not —
6	1	1	1	6	(7)	1	4	(4)	4	1	(1)	4	Electrical jobs	Not —
7	(6)	4	(3)	5	5	5	4	5	5	6	4	(3)	High pay	Not —
8	7	3	(3)	5	(5)	5	6	4	(5)	5	5	2	Working on your own	Not —
9	1	(6)	(4)	1	1	1	6	(4)	1	1	1	1	Dirty clothes	Not —
10	4	1	6	7	(7)	1	7	(7)	4	4	(1)	1	Fixing things	Not —
11	(6)	(3)	7	6	(5)	5	5	5	4	6	4	4	Intelligent	Not —
12	7	2	(7)	7	7	(7)	(5)	4	7	7	7	7	Indoor	Not —
13	5	(1)	2	2	2	(7)	2	2	4	2	(7)	4	Mathematical jobs	Not —
14	7	1	(3)	7	(7)	(3)	7	4	7	7	2	2	Boring jobs	Not —
15	6	(3)	(7)	6	(6)	5	4	5	4	6	5	6	Study	Not —
16	6	6	3	4	(3)	4	5	(4)	7	(7)	4	3	Working with machines	Not —
17	6	1	4	2	2	(6)	2	(2)	2	(6)	3	4	Make their mind up	Not —
18	(5)	1	4	1	(1)	1	4	4	4	1	1	(7)	Teaching	Not —
19	(1)	1	1	1	1	1	(7)	(7)	1	1	1	4	Mechanical jobs	Not —
20	7	1	(7)	7	7	6	6	5	(6)	(7)	4	4	Good	Not —

Name BOY ACADEMIC ABILITY 4 SOUTHOVER SCHOOL

	A Policeman	B Toilet Cleaner	C Secretary	D Road Sweeper	E Receptionist	F Caretaker	G Lorry Driver	H Teacher	I Nurse	J Manager	K Pilot	L Doctor	7 6 5 4 3 2 1	
1	3	(1)	1	1	1	2	2	2	(7)	1	3	(7)	uses medicine	Do not use medicine
2	4	1	(7)	1	(7)	(3)	1	3	3	6	1	5	Take phone calls	Do not take phone calls
3	6	1	5	1	(7)	4	(1)	7	7	4	2	(7)	Help people	Do not help people
4	5	7	6	(7)	6	(7)	3	5	(7)	1	1	6	Keep things clean	Scruffy
5	(7)	(1)	(2)	6	2	6	5	6	6	2	7	6	Services	Not services
6	6	1	6	1	6	(7)	1	7	(7)	(5)	4	7	Help people	Don't help people
7	5	1	4	1	4	3	2	4	6	(5)	(7)	(7)	Make important decisions	Do not make important decisions
8	5	1	(1)	(7)	1	2	(7)	1	1	1	1	1	Need roads	Do not need roads
9	1	(7)	1	7	1	(7)	5	(1)	1	1	1	1	Council work	Not Council work
10	2	(3)	1	4	1	(5)	(7)	1	2	1	2	4	Transports things	Does not transport things
11	5	1	(7)	1	6	1	1	7	3	4	(1)	4	write out things	Does not write out things
12	(7)	1	6	1	(7)	1	1	7	(7)	4	2	7	Help people	Does not help people
13	3	1	1	(1)	1	1	(7)	3	4	1	(7)	4	Makes something work	Makes something not work
14	1	(7)	2	7	2	(7)	7	3	3	(1)	6	2	Casually dressed	Smart
15	7	3	1	1	2	1	1	3	(7)	(4)	(7)	7	Uniform	Normal clothes
16	7	1	5	(4)	5	4	4	(7)	7	6	7	(7)	Professionals	Unprofessional
17	4	1	3	(1)	1	1	1	5	5	(7)	7	(7)	Managing	Not managing
18	(7)	4	(6)	5	(6)	3	2	1	6	1	5	4	Help people	Does not help people
19	4	(7)	1	7	4	4	1	(6)	(7)	1	1	6	Cleans things	Does not clean things
20	4	1	1	1	3	(1)	2	4	(7)	3	2	(7)	Medicine	No medicine

Name GIRL ACADEMIC ABILITY I SOUTHOVER SCHOOL

	A Dentist	B Road Sweeper	C Nurse	D Hairdresser	E Engineer	F Doctor	G Teacher	H Research Chemist	I Chimney Sweep	J Shopkeeper	K Midwife	L Dressmaker	7 6 5 4 3 2 1	
1	5	1	(6)	5	(4)	7	1	(7)	1	1	2	1	use Chemicals	Do not use chemicals
2	5	1	4	(5)	(7)	4	1	2	2	1	(1)	1	use machinery	Do not use machinery
3	(7)	1	(7)	1	1	7	1	6	1	1	6	(1)	Medical	Not medical
4	6	2	5	4	4	6	6	(7)	(1)	5	2	(6)	Clean	Not clean
5	6	2	5	(4)	4	6	6	7	(1)	5	2	(6)	Clean	Not clean
6	(1)	6	1	5	3	1	(7)	(6)	5	4	1	2	Boring	Not boring
7	6	1	1	6	2	6	2	2	(7)	(7)	6	(2)	Own business	Not own business
8	1	(1)	6	1	1	(6)	5	2	1	2	(7)	1	Babies	Not babies
9	2	6	5	2	(1)	5	4	2	(7)	(7)	6	2	Movement	No movement
10	7	1	6	2	4	(7)	6	(4)	1	1	(7)	4	Highly qualified	Not highly qualified
11	(7)	1	6	5	1	6	(7)	3	2	(1)	6	3	Teaching others	Not teaching others
12	(6)	1	6	2	2	(5)	1	2	1	1	(7)	1	Bloody	Not bloody
13	7	(1)	6	6	(7)	4	(7)	6	1	6	4	6	Not outdoors	Outdoors
14	7	1	(7)	1	1	6	1	4	1	1	(6)	(2)	Give injections	Do not give injections
15	1	(7)	1	(7)	5	(2)	1	1	7	1	1	1	Brushes	Not brushes
16	7	1	6	6	7	4	6	(7)	(1)	(7)	4	1	Indoors	Not indoors
17	7	1	7	2	3	(7)	4	(3)	1	1	7	(1)	Boring	Not boring
18	1	6	1	4	(7)	1	(7)	3	6	1	1	(4)	Monotonous	Not monotonous
19	3	1	(1)	(6)	1	3	1	1	1	(7)	1	5	Sells things	Does not sell things
20	(7)	1	(7)	2	1	7	1	(1)	1	4	7	1	Interesting	Not interesting

Name GIRL ACADEMIC ABILITY 4 SOUTHOVER SCHOOL

	A Receptionist	B Teacher	C Nurse	D Typist	E Clerical worker	F Librarian	G Social worker	H Air hostess	I Shop Assistant	J Secretary	K Telephonist	L Model	7 6 5 4 3 2 1	
1	5	4	(1)	4	5	3	2	6	(2)	4	3	(7)	Low pay	Not low pay
2	7	2	3	5	5	5	1	(1)	(2)	7	(7)	2	Answer telephone	Not answer telephone
3	3	(7)	4	3	3	3	(6)	4	4	(4)	4	1	Teaches	Does not teach
4	(4)	(5)	4	4	4	3	6	(7)	3	3	3	6	Travel	Does not travel
5	4	4	7	3	3	(6)	(3)	(7)	3	2	1	1	Uniform	Not uniform
6	(6)	(7)	6	4	4	(7)	7	6	4	4	5	2	Helpful to people	Not helpful to people
7	7	4	4	6	(7)	6	3	(3)	2	7	(7)	1	Office work	Not office work
8	6	6	(7)	4	4	(4)	4	(7)	3	4	5	5	Good qualifications	Not good qualifications
9	7	7	7	(6)	5	7	7	7	7	6	(7)	(7)	Meet people everyday	Does not meet people everyday
10	6	(7)	6	6	(7)	6	(4)	5	6	6	6	4	Indoor work	Not indoor work
11	(7)	(7)	5	3	3	4	(4)	6	7	4	6	3	Meet the same people	Does not meet the same people
12	4	2	2	7	6	3	(7)	(3)	1	(7)	2	1	Type	Does not type
13	4	4	7	(6)	3	3	2	(7)	4	4	4	(7)	Clothes part of the job	Clothes not part of the job.
14	(6)	7	6	3	3	(7)	2	1	1	(4)	3	1	Work with books	Does not work with books
15	4	3	(6)	(7)	4	3	2	1	1	6	4	(1)	Type	Do not type
16	5	(7)	3	4	(7)	4	1	5	4	3	2	(1)	Casual clothes	Not casual clothes
17	(7)	5	4	4	4	3	6	5	6	6	(7)	(3)	Good speaking voice	Not a good speaking voice
18	4	4	6	(7)	(6)	4	4	3	6	5	6	(1)	Use fingers	Does not use fingers
19	(5)	4	(6)	3	2	1	1	(7)	1	4	4	6	Need special personal qualities	Does not need personal qualities
20	6	4	(2)	6	6	4	(3)	1	1	7	(1)	2	Deals with post	Does not deal with post

APPENDIX III

The sample of constructs elicited from the pupils of Northover and Southover Schools.

Need HGV licence
Talent needed
Controls things
House tp house work
Popular
Initiative needed
Discipline formal/informal
Constructive
Works with paint
Concerned with sport
Works with drugs
Works with clothes
Works with numbers
Works with aircraft
Works with buildings
Works with traffic
Works with law
Works with children
Works with old people
Works with tools
Works with cars
Works with computers
Works with machinery
Works with hands
Works with animals
Works with people
Works with wires/cables/pipes
Works with special equipment
Works with wood
Works with lorries
Works with adults/young
Works with electronics
Works with glass
Works with books
Works with metal
Works with insurance
Communication
Laboratory
Underground
On the ground
In the air
Seagoing
Manages
Concerned with discipline
Entertainment
Performs
Agricultural
Factory work
Industrial
Self employed
In a large organisation
Professional
Steady income
Secure
Typing
Works with water
Works with food
Delivery and Transport
Moving about a lot
In one place
Team work
Cleaning
Tidying
Regular hours
Long hours
Shift work
Overtime
Regular holidays
Long holidays
Making things
Production
Apprenticeship
Shopwork
Homework
Varied work
Sitting down/on feet
Warm conditions
Work for council
Selling goods
Buying
Pushy
Engineering
Responsible
Nationalised/State job
Civil service
Repair and maintenance
Installation
Technical/Scientific
Research
Working on your own
Lonely
Protecting people
Carrying arms
Military service
Writing needed
Clerical
Paperwork
Creative/Artistic
Uses speaking voice
Designing
Working with money
Boring/interesting
Hard work physically
Driving
Manual
Teaching people
Gives advice
Meet people
Meet interesting people
Dangerous
Go to college
High status
Long training needed
Knowledge of science needed
Need A levels
Need O levels
Need CSE levels
Need Degree

Academic
High qualification
Exams/qualifications needed
Special training needed
High pay
Benefits and perks
Uniform
Office
Dirty job
Skilled
Travel
Helping people
Medical
Treats illness
Public service
Outside/Inside
Makes surroundings more pleasant
Washing involved
Grade
Takes orders
Has a practice
Needs planning ability
Not tied down
Working with dangerous chemicals
Contact with nature
Realistic
Practical experience needed
White collar worker
Languages needed
Salaried
Job reward, achievement
National weflare
Detail needed
Surveys things
Talks a lot
City/Country
Telephone answering
Dealing with enquiries
Trade
Part-time/full-time
Weekend work
Day/night work
Working on people
Working for public
Kill people
Saves lives
Female/male
Noisy
Messy
Smelly
Handles goods and materials
Assembling
Works for separate owners
Desk work
Book-keeping
Secretarial
Fashion
Part of community
Away from home
Get transferred
Skilled with metals
Nice surroundings
Smartly/casually dressed
Good appearance
Good personality
Factory surroundings
Exciting
Independent
Nursing
State paid
Queens service
Serving behind counter
Wear overalls
Make important decisions
Influential
Gives orders
Hot work
Highly respectable
Working class
Active job
Union involved
Glamorous
Good manners
Patience needed
Kindness needed
Work in school
Work with old valuable things
Printing
Helps people in emergencies
Hospital work
Blood
Till work
Good conditions
Takes messages
Works with media
Works with mail
Essential to community
Prospects
Physics and Bio needed
Practical
Job open at 16

APPENDIX IV

The sample of constructs elicited from the staff of Northover and Southover Schools.

Law Enforcement
Travelling
Vocational
Selling
Concerned with visual maths
Responsibility
Concerned with personal problems
Working to measurements
Home/away from home
Working with people
Persuasive
Supervised
Manual
Working Class
Selling (a service)
Stressful
Monotonous
Uses a variety of tools
Driving
Personality important
Makes decisions
Bureaucratic
Public value
High/low
Strikes likely
Union membership
Apprenticeship
Good working conditions
Repairing
Shop
Audience
Writing important
Industrial
Profit Making
Glamorous
Useful
Diagnostic
Trusted by public
Counselling
Necessary to society
Short working days
State job
Seafaring
Airborn
Belligerent
Agricultural
Animals
Medical
Academic Study
Active
Manual Skill
Shift Work
With Children
Self-employed
Handles money

Meets pupblic
Works in one place
Sedentary
Long training
Dirty
Salaried
Long holidays
With machines
Dangerous
Physical Contact
Mathematical
Hand tools
Unskilled
Low Pay
Weekend work
Mobile
Vocal
Physical
Indoors
Concerned with the body
Prof. quals.
High status
Creative
Commercial
End product
Regular hours
Exciting
Noisy
Personal contact
Helping Others
Thinking
In public eye
Paperwork
Construction
Selling yourself
Male/Female
Entertainment
Practical
Instructive
Mechanical
Technical Knowledge
Rewarding
Career Structure
Interesting
Secure/not
People-orientated
Serving
Altruistic
Several different functions/specialist
Caring
Remote control
Uniform
Unsocial hours
Work with food
Office

Electrical
Urban
Doctrinal
Needed in emergency
Team work
Fair(just)/Unfair
Daywork/Nighwork
Initiative needed
Paid overtime
Desk job
Factory work
Protective clothing needed
Appearance important
Demanding
Uniform
Blood
Eye strain
Tradesman
Biological
Listening
Graduate
Smelly
Private
Literate
Tactful manner
Analytical
Methodical
Orderly
Versatile
Perceptive
Meticulous
Tidy
Friendly
Painstaking
Attractive
Confident
Polite
Record keeping
Patience
Concrete
Verbal dexterity
Isolated
Clerical
Experience required
Punctuality
Need good health
Speed required
Communicative
Giving advice
Writing important
Colourful
Ver
White collar
Modern
Individualistic
Impulsive
Working with living things
Introspective
Various
Intuition
Conceptual
Abstract
Imaginative
Relaxed
Authority
Educational
Perks
Organisation important
Bonus schemes
Tradesman
Research
Eccentric
Sexy
Hand working
World study
Depends on weather
Improves home
Works with plants
Need special equipment
Easily recognised in working clothes
To do with morals
Customer satisfaction
Motivated
Working with goods and materials
Working with vehicles
Available/not available work
Dealing with confidential matters
Controlling
Skilled in dealing with people
Visiting homes
On call at any time
Member of a large organisation
Confined environment
Able to influence quality of environment
Clerical
Improving/not
With water
Managerial
Degree
Long term goals

APPENDIX V

The sample of job titles elicited from the pupils of Northover and Southover Schools.

Accountant
Actor/Actress
Actuary
Advertising
Adviser on urban problems
Agricultural Engineer
Air Hostess
Air traffic controller
Ambulance service
Anaesthetist
Antique dealer
Archaeologist
Architect
Armed Forces
Army
Artist
Astronaut
Astronomer
Baker
Ballet dancer
Bank Clerk
Bank Manager
Bar Staff
Beautician
Biochemist
Bicycle Repairer
Blacksmith
Boxer
Bricklayer
British Aerospace
British rail
Builder
Bus driver/conductor
Butcher
Body Builder
Careers officer
Caretaker
Carpenter
Car salesman
Cashier
Cartographer
Catering assistant
Chamber maid
Chauffeur
Chemist
Chemical Engineer
Chimney sweep
Chiropodist
Civil Engineer
Civil servant
Cleaner
Clerk, clerical assistant
Clinical trainee
Coalman
Cook/Chef
Comedian
Commercial artist
Company director
Compositor
Computer operator
Computer programmer
Computer salesman
Coppersmith
Council worker
Courier
Craft apprentice
Craftsman
Customs & Excise
Dancer
Dancing teacher
Data processer
Deep sea diver
Dentist
Dental assistant
Design artist
Designer (dress)
Designer (graphic)
Designer (interior)
Despatch rider
Detective
Dietician
Disc jockey
Docker
Doctor
Dog trainer
Draughtsman
Dressmaker
Driving instructor
Dustman
Editor
Electrician
Electrical/Electronic Engineer
Employment officer
Engineer
Environmental health officer
Factory worker
Factory manager
Farm worker/labourer
Family care
Fashion sales
Film producer
Film star
Fireman
Fisherman
Fitter
Florist
Footballer
Forensic scientist
Forrester
Foundry worker

French polisher
Gamekeeper
Garage work
Gardner
Gas board
Gas fitter
Glass blower
Glazier
Golfer (professional)
Grave digger
Groundsman
Guide dog trainer
Gunsmith
Gynaecologist
Hairdresser
Haulage contractor
Ice cream manufacturer
Ice cream van driver
Ice Hockey player (professional)
Insurance broker
Insurance underwriter
Jockey
Joiner
Journalist
Judge
Kennel maid
Labourer
Lab assistant/Technician
Landscape archietect
Laundry worker
Librarian
Lifeguard
Local government
Lollipop lady
Lorry driver
Machinist
Magician
Making false teeth
Magistrate
Make-up artist
Marine biologist
Marine engineer
Manager/Manageress
Manager of Hollywood
Marriage guidance counsellor
Mason
Masseur
Mechanic
Mechanical engineer
Meteorologist
Microbiologist
Midwife
Milkman
Miner
Model
Model maker
Mortuary attendant
Professional musician
Nanny/Nursery nurse
Naturalist
Navy
News reader
Night watchman
Nurse
Nurse (animal)
Nuclear physicist
Nun
Occupational therapist
Office work
Oil rig worker
Optician
Painter & Decorator
Panel beater
Park attendant
Paratrooper
Pathologist
Petrol pump attendant
Pet shop owner
Pharmacist
Photographer
Physicist
Physiotherapist
Piano tuner
Pilot
Plasterer
Plumber
Policeman/woman
Politician
Porter
Postman
Post officer worker
Printer
Prison officer
Probation officer
Professor of music
Psychiatrist
Psychologist
Publican
Public relations officer
Quarry worker
Racing driver
Radar operator
Radio technician
R.A.F.
Rag & Bone man
Railway porter
Receptionist (Hotel etc.)
Record manufacturer
Rentokil
Reporter
Research assistant
Research chemist
Research pysicist
Research student

Restaurant worker
Retail management
Riding school
Road construction
Road sweeper
Rock musician
Rolls Royce
Roofer
RSPB
RSPCA
Rugby player professional
Sales representative
Sanitary inspector
Scaffolder
Scientist
Scrap merchant
Sea rescue
Secretary
Security guard
Sewage worker
Shop assistant
Shopkeeper/manager
Shelf filling
Shipping master
Sign writer
Singer
Skin diver
Snack bar attendant
Social worker
Solicitor/Lawyer
Speech therapist
Speedway rider
Spray painter
Stockbroker
Store detective
Stuntman
Surgeon
Surveyor
Surveyor (quantity)
Systems analyst
Tailor/tailoress
Taxidermist
Taxi driver
Tank designer
Teacher
Tea lady
Technical drawer
Technician
Technologist
Telecommunications Eng.
Telephonist
Tennis player (professional)
Tiler
Tinsmith
Timber merchant
Toilet attendant
Toilet cleaner
Toolmaker
Town planner
Traffic warden
Train driver
Training officer
Travel agent
Tree feller
Tree surgeon
Turf accountant
T.V. cameraman
T.V. maintenance
T.V. sound engineer
T.V. star
Typist
Undertaker
University lecturer
Upholsterer
Vet
Vicar
Virologist
Waitress/Waiter
Watch maker
Water board
Wages clerk
Warden, Nature Reserve
Welder
Wild game hunter
Window dresser
Window cleaner
Writer
Zookeeper
Zoologist

APPENDIX VI

The sample of job titles elicited from the staff of Northover and Southover Schools.

Accountant
Actor/Actress
Advertising Executive
Air Hostess
Antique Dealer
Architect
Armed Forces
Army
Artist
Athlete
Author
Baker
Ballet Dancer
Bank Clerk
Bank Manager
Barman/maid
Bookseller
Bricklayer
Builder
Bus Driver/Conductor
Butcher
Caretaker
Carpenter
Car Salesman
Cashier
Catering Assistant
Ceramicist
Chemist
Civil Engineer
Civil Servant
Cleaner
Clerk/Clerical Assistant
Coalman
Cook/Chef
Commercial Artist
Company Director
Composer
Computer Operator
Computer Programmer
Coppersmith
Council Worker
Counsellor
Craftsman
Cricketer (Professional)
Customs and Excise
Dentist
Dress Designer
Design Engineer
Docker
Doctor
Dog Trainer
Draughtsman
Dressmaker
Dustman
Economist
Electrician
Electrical/Electronic Engin.
Engineer
Engineering Inspector
Environmental Health Officer
Estate Agent
Factory Worker
Farm Worker
Fireman
Fisherman
Fitter
Footballer
Forrester
Fundraising
Garage Work
Gardener
Graduate Training Officer
Grave Digger
Groundsman
Hairdresser
Horse Groom
Hospital Worker
Hotel Manager
Housemaid
Housewife
Income Tax Inspector
Insurance (Broker)
Insurance Inspector
Interior Decorator
Joiner
Journalist
Kennel Maid
Labourer
Lab Technician
Librarian
Lorry Driver
Machine Operator
Make-up Artist
Market Researcher
Manager/Manageress
Masseur
Mechanic
Metallurgist
Meteorologist
Milkman

Miner
Missionary
Musician (Professional)
Nursery Nurse
Navy
Newsagent
News Reader
Nurse
Office Work
Oil Rig Worker
Outdoor Activities Instructor
Painter & Decorator
Personnel Manager
Pharmacist
Philosopher
Photographer
Photographic processing
Pilot
Plasterer
Playgroup Leader
Plumber
Police
Politician
Postman
Post Office Worker
Potter
Printer
Prison Officer
Probation Officer
Psychiatrist
Psychologist
Publican
Radar Operator
R.A.F.
Receptionist
Removals Director
Research Assistant
Road Sweeper
Sales Executive
Sales Representative
Scaffolder
School Welfare Assistant
Scientist
Seamstress
Secretary
Sewage Worker
Shop Assistant
Shop Keeper
Singer
Slaughterman
Social Worker
Solicitor
Stamp Dealer
Steelworker
Stockbroker
Storeman
Surveyor
Tailor
Taxi Driver
Teacher
Tea Lady
Telephonist
Tiler
Toolmaker
Town Planner
Traffic Warden
Train Driver
Travel Agent
T.V. Engineer
Typist
Undertaker
University Teacher/Lecturer
Vet
Vicar
Waitress
Ward Orderly
Welder
Welfare Officer
Window Cleaner
Youth Leader

APPENDIX VII

Selection of a method of occupational classification.

Selection of a method of occupational classification.

The system of occupational classification chosen was the CODOT system developed by the Manpower Research Unit of the Department of Employment. This system is extremely detailed and contains 73 Minor Groups corresponding to separate occupations. This system is far too detailed for the requirements of the present study and so the procedures adopted by Thomas and Wetherell (1974) were employed producing a fourfold job status hierarchy. A detailed account of the condensation process involved is given in Appendix C of Looking Forward to Work (Thomas and Wetherell, 1974). The following table shows the classification of occupational groups and the condensed status category to which they were allocated.

All managerial and administrative occupations	I
All professional occupations supporting management/ administration or in education, welfare or health	I
All literary, artistic and sports occupations	I
All professional and related occupations in science, engineering, technology and similar fields	I
All clerical data-processing and related occupations	I
All selling occupations, including roundsmen and retail supervisors	III
Security and protective service occupations	II
Armed Forces	II
All catering, cleaning, hairdressing and other personal service occupations	III
All farming, fishing and related occupations	IV

Materials processing occupations excluding metal	(Apprenticed)	IV
	(Non-Apprenticed)	IV
Making the repairing occupations, excluding metal, wood, electrical and printing/photographic/bookbinding	(Apprenticed)	IV
	(Non-Apprenticed)	IV
Metal forming and treating, engineering and metal manufacturing fitting and machining	(Apprenticed)	II
	(Non-Apprenticed)	IV
Mechanical installing, maintaining and repairing	(Apprenticed)	III
	(Non-Apprenticed)	III
Printing, photographic, bookbinding and related occupations	(Apprenticed)	II
	(Non-Apprenticed)	IV
Electrical and electronic fitting, installing, maintaining and repairing	(Apprenticed)	II
	(Non-Apprenticed)	II
Pipe, sheet and structural metal working	(Apprenticed)	III
	(Non-Apprenticed)	III
Painting, coating decorating	(Apprenticed)	III
	(Non-Apprenticed)	III
Woodworking occupations	(Apprenticed)	III
	(Non-Apprenticed)	III
All building, civil engineering mining and related occupations	(Apprenticed)	IV
	(Non-Apprenticed)	IV
Product assembling sorting, packaging, labelling, materials handling, equipment operating, labouring.		IV
All postal, transport and communications occupations		IV

APPENDIX VIII

Specimen provided grid completed by teachers and pupils during the second grid administration.

Name..... School.....

A Your Own Ideal Job	B Shop Work	C Clerical Trainee	D Engineering Craft Apprentice	E Armed Forces	F Hairdresser Apprentice	G Nursing	H Factory (Unskilled)	I Builder's Labourer	J Office Junior	K Farm Worker	L Warehouse Assistant	7 6 5 4 3 2 1	
												Dirty	Not Dirty
												Working with People	Not Working with People
												Manual	Non Manual
												Skilled	Unskilled
												Creative	Not Creative
												High Pay	Low Pay
												Qualifications Needed	Qualifications Not Needed
												Academic	Not Academic
												Special Training Needed	Special Training Not Needed
												Help People	Not Help People
												Physical	Not Physical
												Selling	Not Selling
												Professional	Not Professional
												Working with Machinery	Not Working with Machinery
												High Status	Low Status
												Personal Contact	No Personal Contact
												Inside	Outside
												End Product	No End Product
												Boring	Interesting
												Mathematical	Not Mathematical

APPENDIX IX

Analysis of Variance Tables.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	2106	267	13	1160	55	679	32
2	1893	294	15	916	48	682	36
3	2041	262	13	1101	54	677	33
4	2047	181	9	1276	62	590	29
5	1866	279	15	898	48	688	37
6	1540	249	16	632	41	657	43
7	1876	152	8	1205	64	518	28
8	1646	190	11	962	58	493	30
9	2230	208	9	1374	61	647	29
10	2235	365	16	1188	53	680	30
11	2093	337	16	1073	51	682	32
12	1809	172	9	1141	63	496	27
13	2123	153	7	1391	65	579	27
14	2022	250	12	1006	50	765	38
15	1528	206	13	708	46	614	40
16	2292	234	10	1517	66	540	23
17	2748	393	14	1207	44	1147	42
18	2406	466	19	816	34	1123	47
19	2005	156	8	738	37	1111	55
20	1457	292	20	486	33	678	47

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Northover Teachers n = 44.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	3781	295	8	2380	63	1106	30
2	3155	360	11	1353	43	1442	46
3	3563	489	14	1275	36	1797	50
4	3569	301	8	2087	58	1180	33
5	3248	530	16	1263	39	1454	45
6	2043	301	15	566	28	1174	57
7	3313	481	14	1802	54	1029	31
8	2963	514	17	1155	39	1292	44
9	3708	325	9	2110	57	1272	34
10	3470	404	12	1733	50	1331	38
11	3597	488	14	1677	47	1431	40
12	3616	454	13	1714	47	1447	40
13	3733	434	12	1915	51	1384	37
14	3464	361	10	1625	47	1497	43
15	2651	386	15	1057	40	1207	45
16	3525	410	12	1707	48	1407	40
17	4379	394	9	1845	42	2140	49
18	3827	588	15	1118	29	2121	55
19	3617	497	14	667	18	2451	68
20	2494	429	18	565	23	1499	60

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions- Northover Stayers n = 72.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	5250	375	7	2865	55	2009	38
2	3951	806	20	1199	30	1945	49
3	4680	920	20	1076	23	2684	57
4	4815	605	13	2254	47	1954	41
5	4438	872	20	1218	27	2348	53
6	2594	415	16	518	20	1660	64
7	4713	585	12	2147	22	1980	42
8	4021	669	17	1144	28	2206	55
9	5114	763	15	2298	45	2052	40
10	4487	758	17	1752	39	1976	44
11	4705	655	14	1555	33	2494	53
12	4814	605	13	1839	38	2368	46
13	5107	893	17	1851	36	2362	46
14	4978	600	12	2000	40	2377	48
15	3695	569	15	936	25	2189	59
16	4356	983	23	1276	29	2096	48
17	5552	610	11	2237	40	2704	49
18	4791	482	10	1226	26	3082	64
19	4944	824	17	351	7	3767	76
20	3720	645	17	765	21	2309	62

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Northover Leavers n = 90.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	2903	208	7	1951	67	743	26
2	2478	294	12	1087	44	1096	44
3	2765	388	14	1107	40	1270	46
4	2743	223	8	1695	62	824	30
5	2444	386	16	938	38	1119	46
6	1510	214	14	516	34	779	52
7	2552	262	10	1572	62	717	28
8	2381	368	15	1101	46	911	38
9	3016	314	10	1753	58	948	31
10	2712	336	12	1358	50	1017	38
11	2769	344	12	1336	48	1088	39
12	2761	315	11	1363	49	1081	39
13	2872	294	10	1571	55	1007	35
14	2678	264	10	1285	48	1127	42
15	2069	294	14	966	47	807	39
16	2779	412	15	1334	48	1032	37
17	3412	308	9	1719	50	1384	41
18	2923	450	15	897	31	1576	54
19	2829	429	15	648	23	1751	62
20	1895	286	15	513	27	1095	58

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Northover Stay (intended) n = 39.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	2254	146	6	1120	50	987	44
2	1551	336	22	341	22	873	56
3	1698	421	25	246	14	1030	61
4	1949	317	16	778	40	853	44
5	1812	288	16	424	23	1100	61
6	1085	135	12	200	18	749	69
7	1978	268	13	837	42	872	44
8	1576	220	14	415	26	940	60
9	2066	326	16	780	38	960	61
10	1787	257	14	686	38	843	47
11	2011	262	13	517	26	1232	61
12	2200	314	14	680	31	1205	55
13	2241	438	19	573	26	1229	55
14	2073	193	9	741	36	1138	55
15	1531	195	13	268	17	1066	70
16	1731	367	21	328	19	1034	60
17	2391	295	12	716	30	1378	58
18	2008	168	8	444	22	1395	69
19	2057	320	16	165	8	1571	76
20	1616	263	16	286	18	1066	66

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Northover Leave (intended) n = 55.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	3873	315	8	2264	58	1293	33
2	3082	540	17	1189	39	1351	44
3	3755	574	15	1131	30	2059	55
4	3662	337	9	1928	53	1396	38
5	3391	689	20	1166	34	1535	45
6	2062	388	19	436	21	1237	60
7	3473	513	15	1599	46	1360	39
8	2980	549	18	878	29	1552	52
9	3750	458	12	1958	52	1333	35
10	3467	578	17	1488	43	1400	40
11	3518	534	15	1420	40	1564	44
12	3455	415	12	1537	44	1502	43
13	3731	600	16	1711	46	1420	38
14	3713	506	14	1669	45	1537	41
15	2726	444	16	849	31	1432	52
16	3366	608	18	1411	42	1346	40
17	4116	388	9	1708	41	2018	49
18	3695	459	12	1100	30	2135	58
19	3666	565	15	261	7	2840	77
20	2668	490	18	558	21	1618	61

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Northover Uncertain (intended) n = 68.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	1682	146	9	993	59	543	32
2	1527	160	10	795	52	572	37
3	1663	168	10	902	54	593	36
4	1687	126	7	1120	66	441	26
5	1565	290	18	620	40	656	42
6	1057	108	10	399	38	550	52
7	1733	177	10	958	55	598	34
8	1503	248	16	810	54	444	29
9	1785	185	10	956	54	643	36
10	1759	263	15	886	50	609	35
11	1577	188	12	851	54	538	34
12	1655	231	14	889	54	535	32
13	1942	330	17	910	47	700	36
14	1623	170	10	705	43	747	46
15	1342	169	13	716	53	457	34
16	1863	152	8	1043	56	667	36
17	2328	244	10	1018	44	1065	46
18	1981	188	9	657	33	1135	57
19	1750	183	10	475	27	1091	62
20	1207	190	16	495	41	520	43

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions- Southover Teachers n = 34.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	1237	60	5	777	63	398	32
2	1235	223	18	271	22	740	60
3	1246	355	28	228	18	663	53
4	1203	174	14	424	35	604	50
5	1315	253	19	289	22	772	59
6	758	138	18	144	19	475	63
7	1222	173	14	443	36	606	50
8	1138	187	16	320	28	630	55
9	1277	115	9	474	37	686	54
10	1264	194	15	334	26	736	58
11	1125	139	12	413	37	572	51
12	1455	353	24	484	33	617	42
13	1265	228	18	396	31	641	50
14	1212	245	20	366	30	601	50
15	1025	256	25	286	28	481	47
16	1287	172	13	450	35	665	52
17	1542	200	13	417	27	924	60
18	1258	175	14	210	17	872	69
19	1447	280	19	364	25	801	55
20	1092	172	16	180	16	739	68

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Southover Stayers n = 27.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	7976	648	8	4161	52	3166	40
2	6446	1796	28	1131	17	3517	55
3	6605	1916	29	751	11	3937	60
4	6910	850	12	2317	33	3743	54
5	7439	1661	22	1302	17	4475	60
6	4290	1189	28	547	13	2554	59
7	7035	1162	16	2081	30	3790	54
8	6007	1222	20	1091	18	3693	61
9	7487	1235	16	2486	33	3765	50
10	7013	1299	18	1745	25	3968	57
11	6868	1088	16	1687	25	4092	60
12	7681	1517	20	2275	30	3888	50
13	7611	1102	14	2072	27	4436	58
14	7638	1132	15	1617	21	4887	64
15	6057	1222	20	1069	18	3765	62
16	7208	1512	21	1186	16	4509	63
17	8802	1503	17	1844	21	5454	62
18	7934	1203	15	872	11	5858	73
19	7701	1182	15	167	2	6402	83
20	6625	1202	18	665	10	4757	72

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Southover Leavers n = 152.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	1328	89	7	634	48	604	45
2	1251	116	9	434	35	699	56
3	1109	199	18	252	23	657	59
4	1193	136	11	442	37	614	51
5	1323	293	22	261	20	768	58
6	763	112	15	127	17	523	68
7	1250	119	9	390	31	740	59
8	1096	167	15	315	29	613	56
9	1285	145	11	560	44	580	45
10	1295	191	15	388	30	714	55
11	1168	116	10	493	42	559	48
12	1496	304	20	573	38	618	41
13	1218	193	16	418	34	606	50
14	1177	206	17	309	26	661	56
15	1025	202	20	266	26	557	54
16	1266	146	11	463	37	656	52
17	1499	187	12	530	35	781	52
18	1350	190	14	219	16	940	70
19	1509	231	15	294	19	983	65
20	1145	209	18	164	14	771	67

Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Southover Stay (intended) n = 28.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	4182	312	7	2167	52	1702	41
2	3310	849	26	595	18	1864	56
3	3324	829	25	449	13	2045	61
4	3685	374	10	1392	38	1919	52
5	3853	724	19	754	20	2374	62
6	2367	714	30	273	12	1379	58
7	3666	701	19	1158	32	1807	49
8	3181	657	21	606	19	1917	60
9	4055	735	18	1309	32	2010	50
10	3691	635	17	924	25	2131	58
11	3720	663	18	870	23	2187	59
12	4034	697	17	1293	32	2044	51
13	4035	620	15	1132	28	2281	56
14	4115	705	17	1041	33	2368	57
15	3132	677	22	503	16	1951	62
16	3764	641	17	574	15	2548	68
17	4726	782	16	1139	24	2804	59
18	4220	601	14	431	10	3187	75
19	4005	501	12	82	2	3421	85
20	3321	536	16	356	11	2428	73

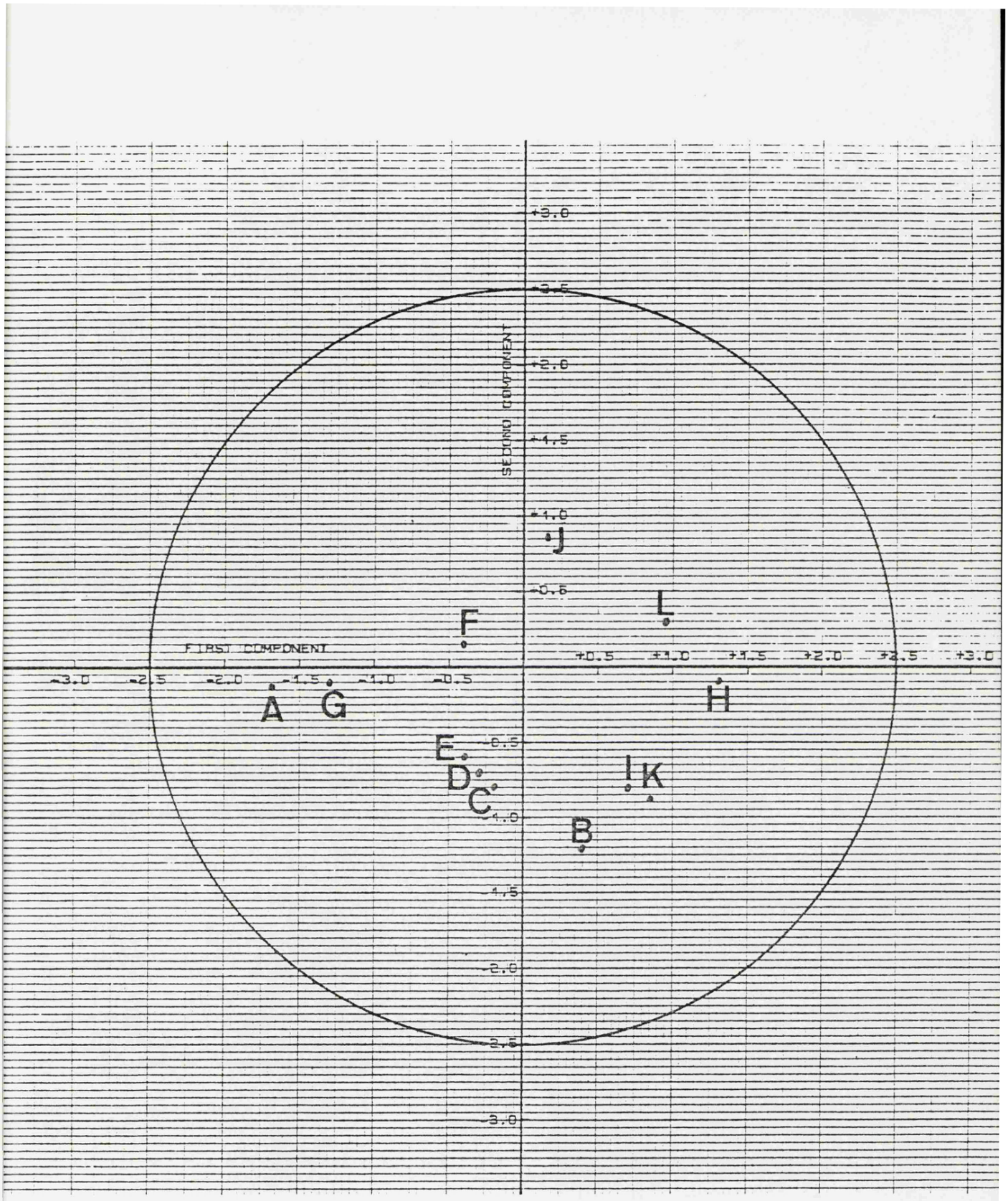
Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Southover Leave (intended) n = 81.

Constructs	Total Observed Variation	Variation Due to Differences Between Occasions	%	Variation Due to Differences Between Elements	%	Variation Due to Occasion/Element Interactions	%
1	3702	307	8	2190	59	1205	33
2	3107	1040	33	446	14	1620	52
3	3424	1249	36	320	9	1854	54
4	3209	488	15	924	29	1795	56
5	3547	866	24	629	18	2051	58
6	1887	469	25	304	16	1114	59
7	3327	502	15	991	30	1834	55
8	2868	584	20	523	18	1759	61
9	3397	444	13	1124	33	1829	54
10	3279	655	20	802	24	1822	56
11	3107	451	14	769	25	1886	61
12	3597	861	24	921	26	1814	50
13	3621	514	14	911	25	2195	61
14	3550	458	13	664	19	2428	68
15	2896	571	20	595	20	1729	60
16	3457	887	27	605	17	1963	57
17	4115	729	18	695	17	2690	65
18	3619	584	16	464	13	2570	71
19	3602	647	18	141	3	2812	78
20	3250	627	19	352	11	2269	70

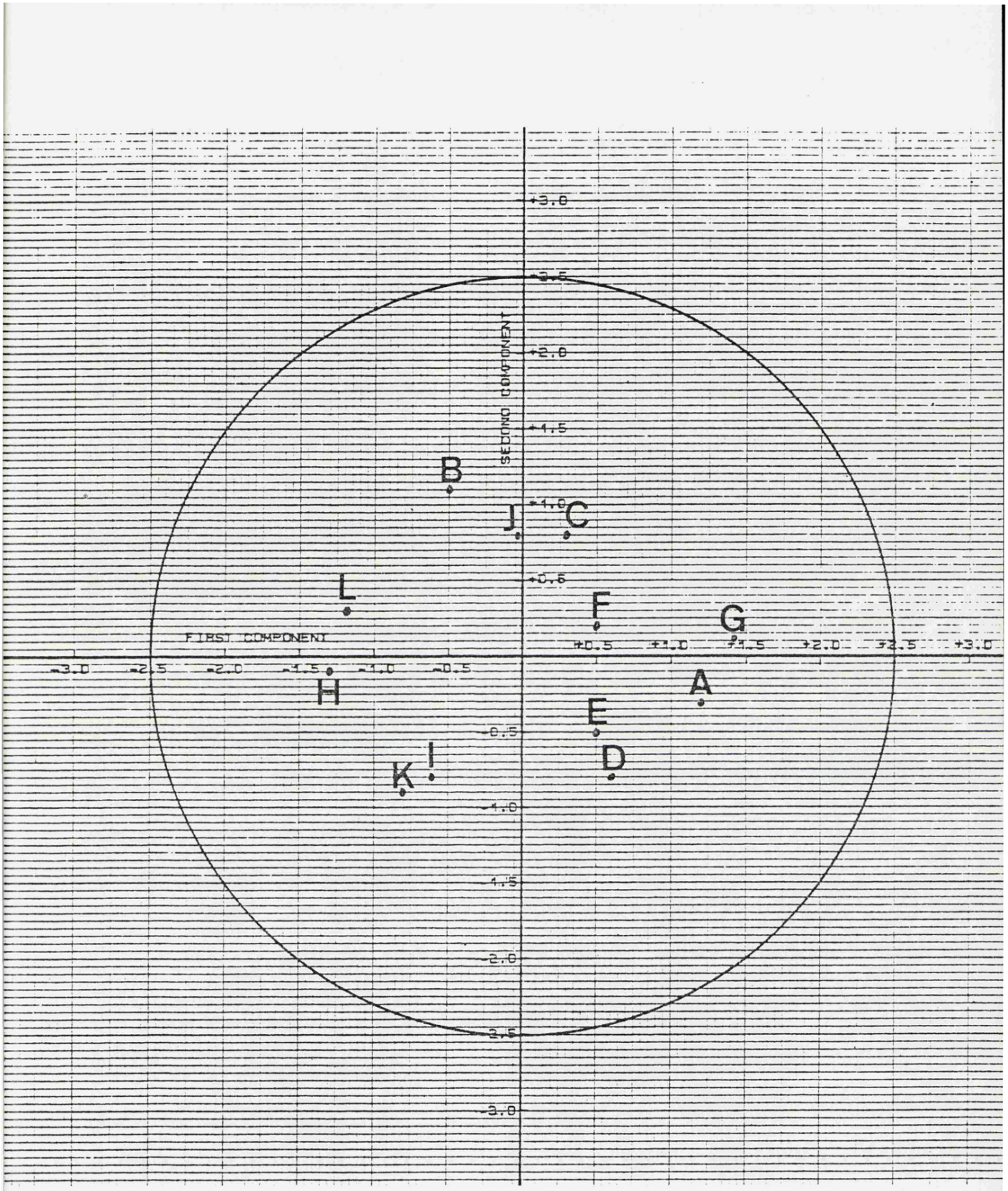
Table showing from an analysis of variance the variation due to differences between Occasions, differences between Elements, and Occasion/Element Interactions - Southover Uncertain (intended) n = 70.

APPENDIX X

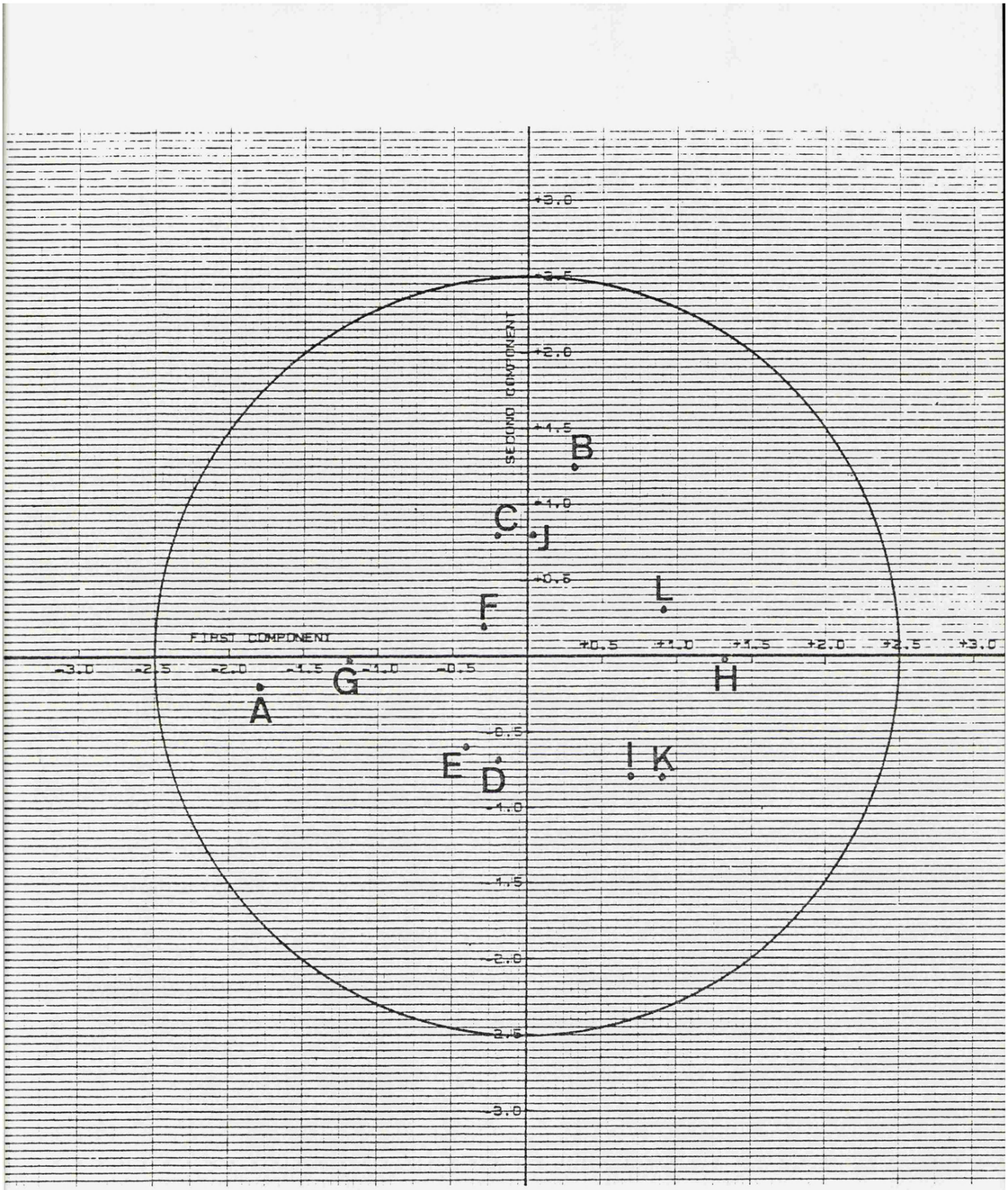
Composite Diagrams.



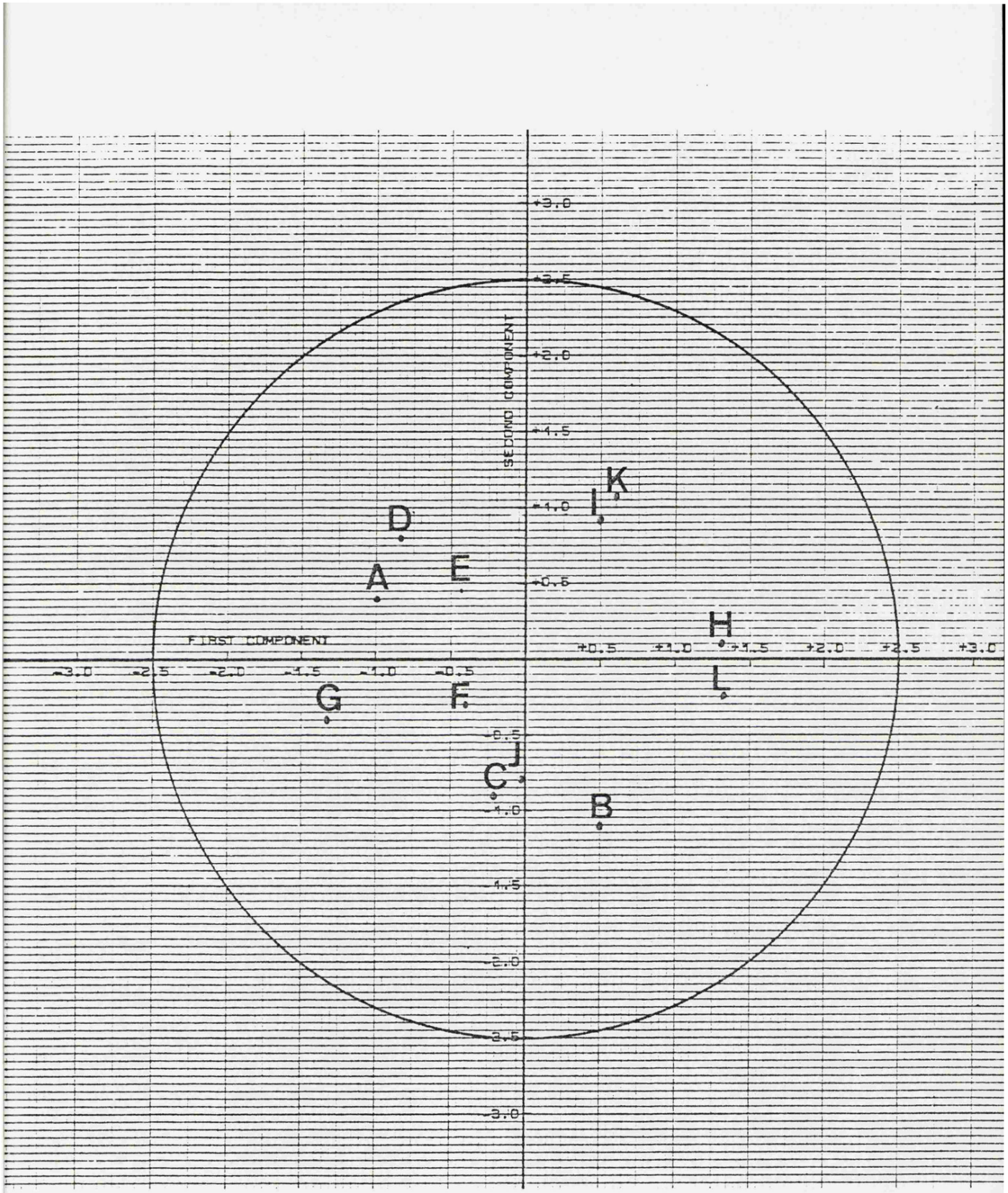
Composite Diagram for Components 1 and 2 (accounting for 72% of recorded variation) - Northover Stayers n = 72.



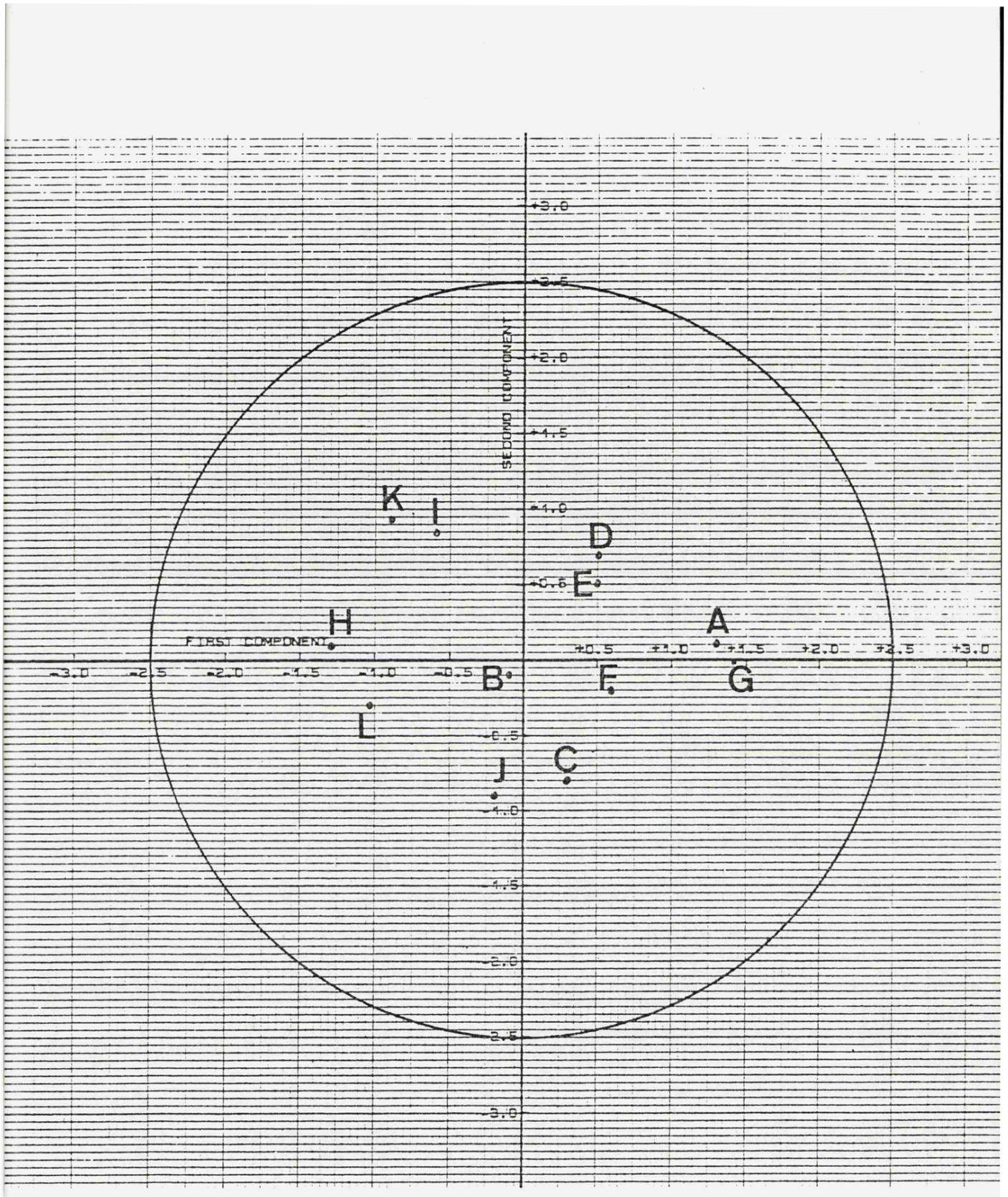
Composite Diagram for Components 1 and 2 (accounting for 71% of recorded variation) - Northover Leavers n = 90.



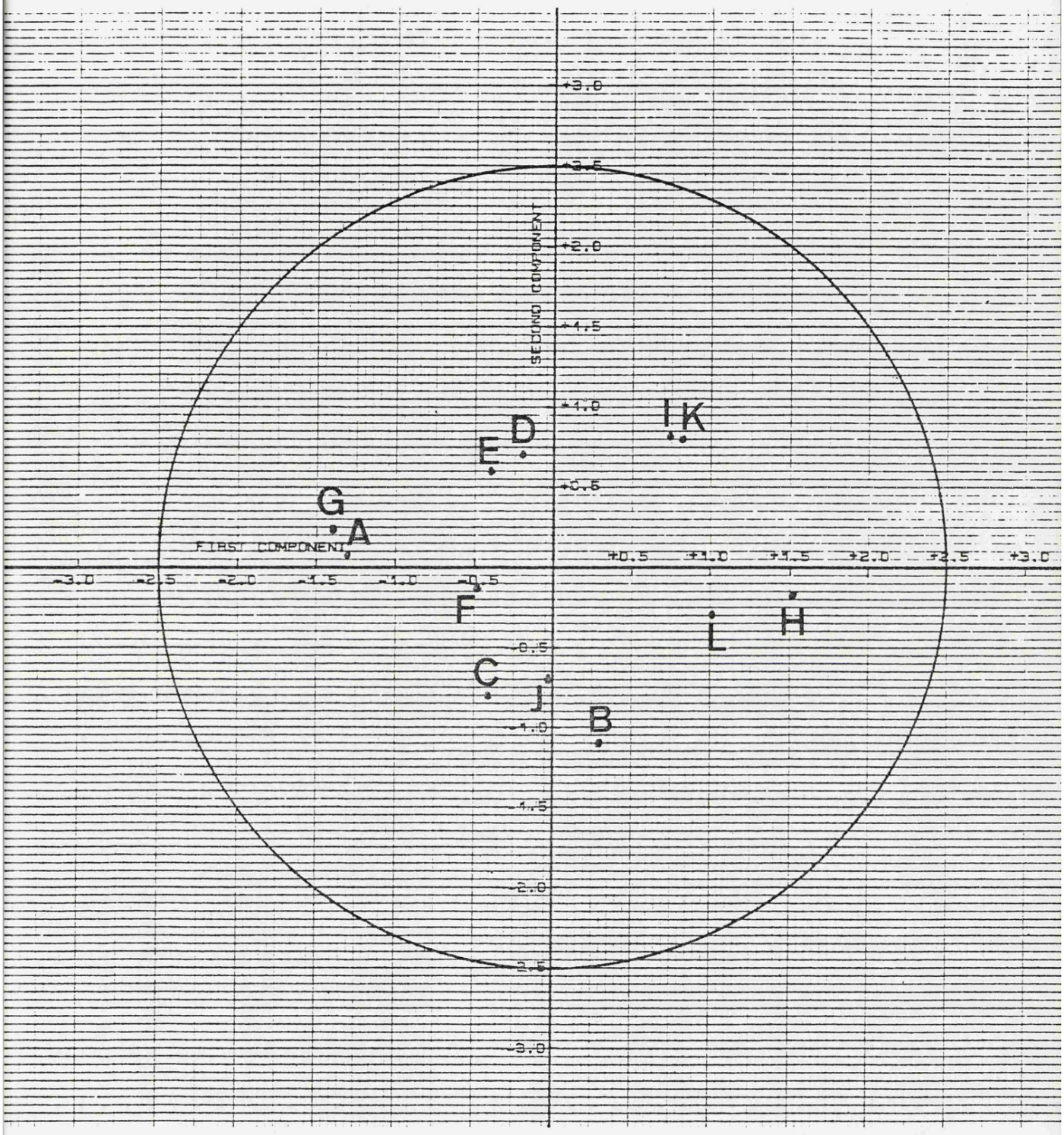
Composite Diagram for Components 1 and 2 (accounting for 71% of recorded variation) - Northover Stay (intended) n = 39.



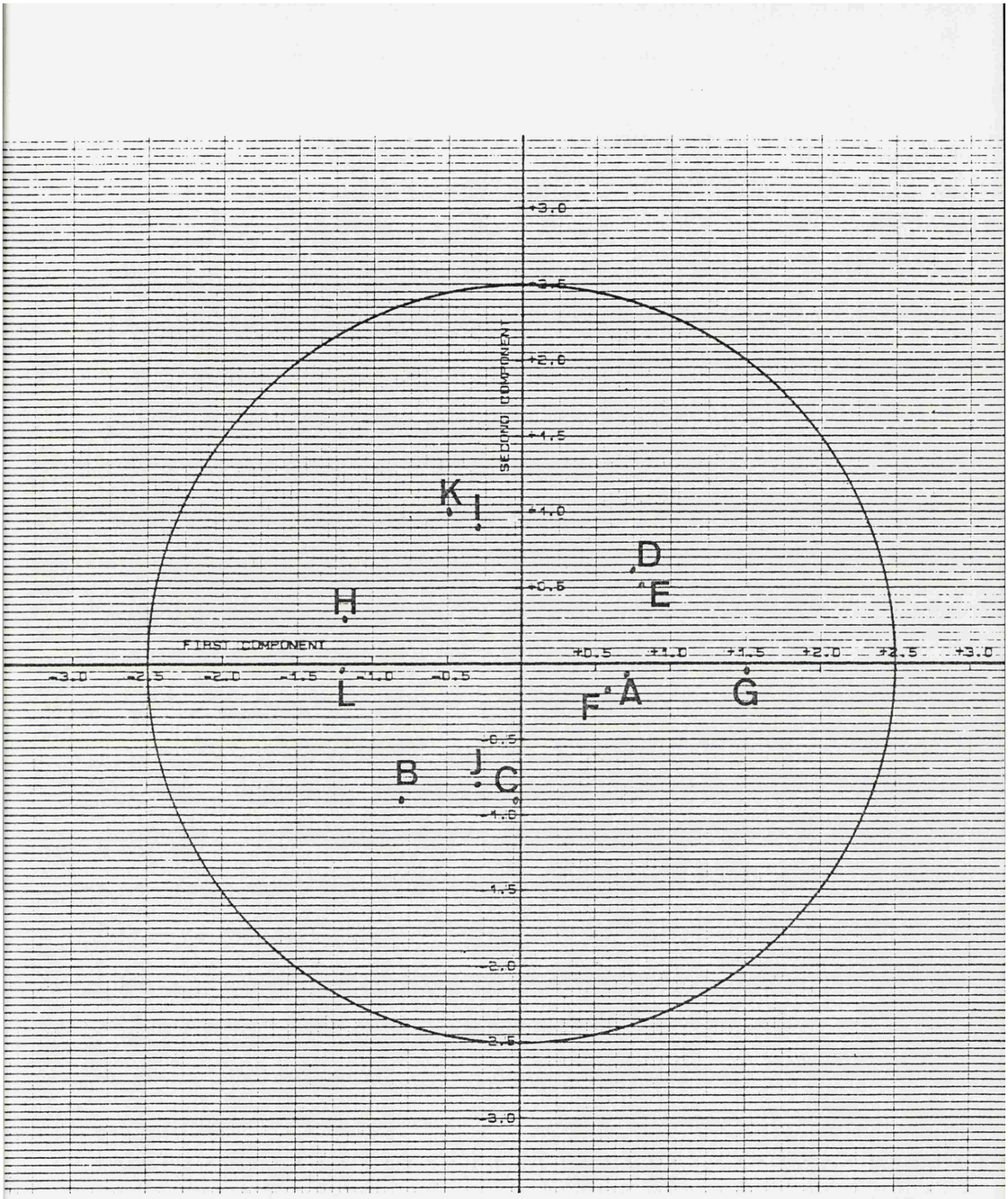
Composite Diagram for Components 1 and 2 (accounting for 70% of recorded variation) - Northover Leave (intended) n = 55.



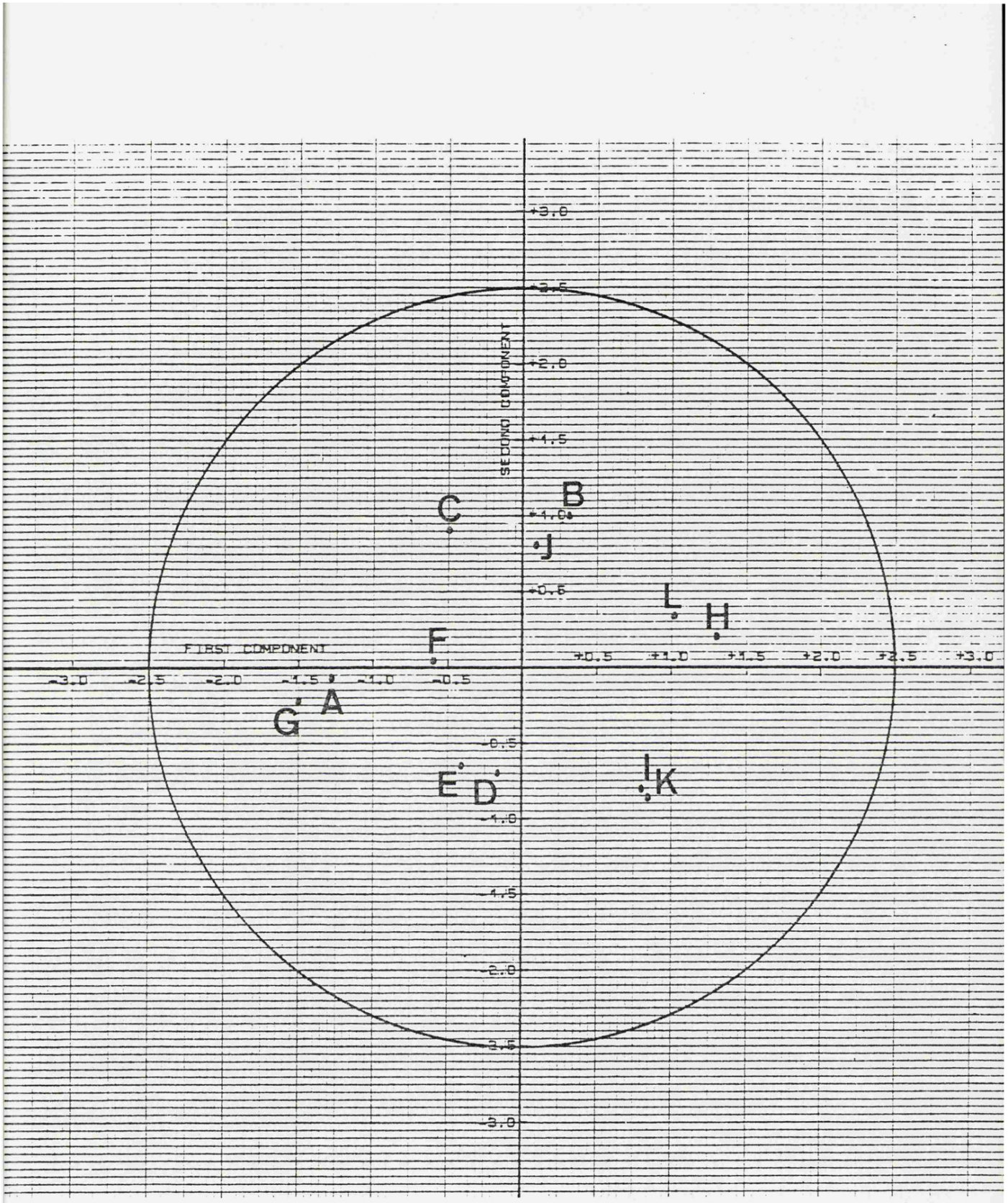
Composite Diagram for Components 1 and 2 (accounting for 71% of recorded variation) - Northover Uncertain (intended) n = 68.



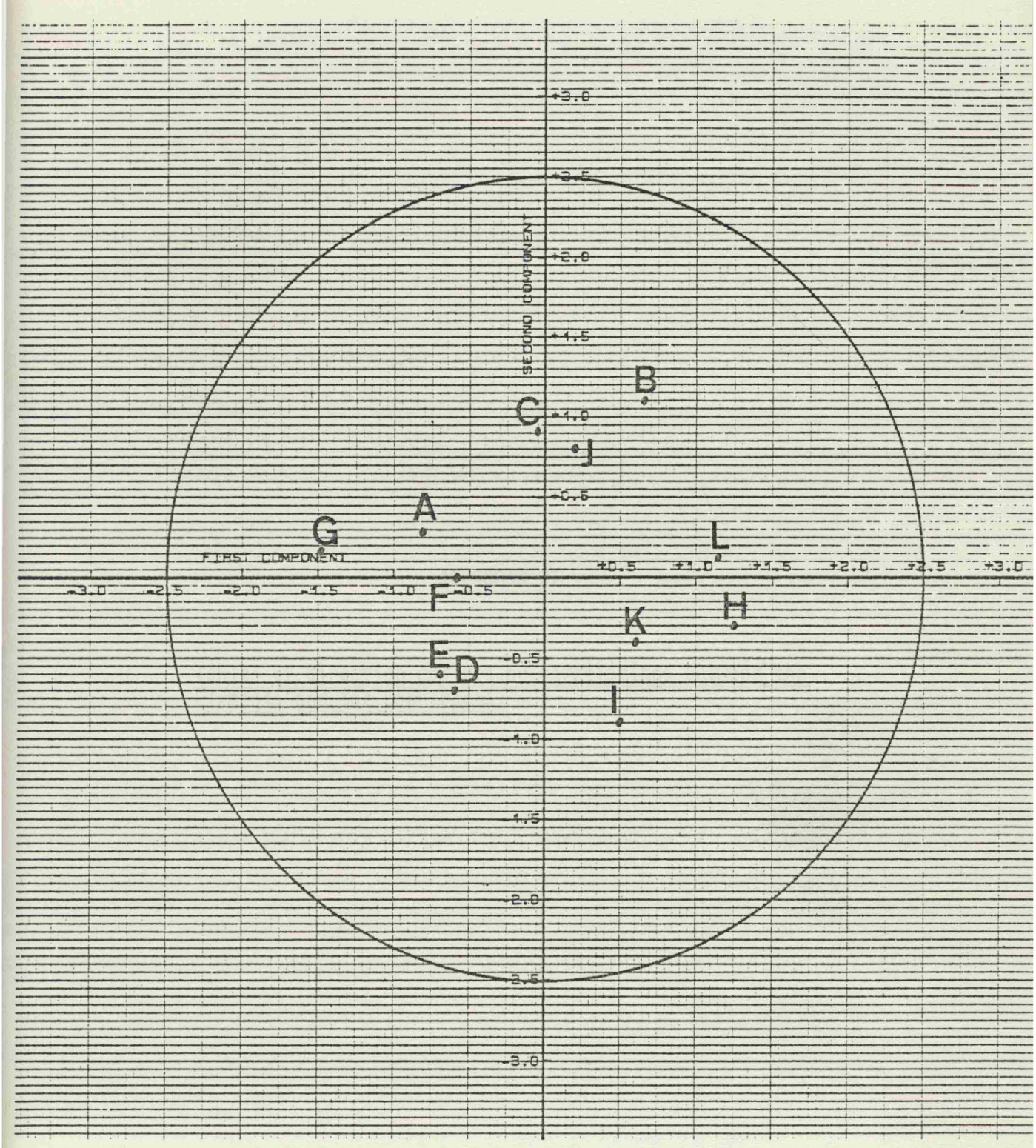
Composite Diagram for Components 1 and 2 (accounting for 70% of recorded variation) - Southover Stayers n = 27.



Composite Diagram for Components 1 and 2 (accounting for 67% of recorded variation) - Southover Leavers n = 152.



Composite Diagram for Components 1 and 2 (accounting for 69% of recorded variation) - Southover Stay (intended) n = 28.



Composite Diagram for Components 1 and 2 (accounting for 68% of recorded variation) - Southover Uncertain (intended) n = 70.

APPENDIX XI

Tables of direction cosines or correlations between the Elements and the Constructs.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.49	.97	-.24	-.12	-.00	-.42	-.45	-.27	-.42	.92	-.27	-.32	.79	-.32	-.53	-.64	.54	.10	-.32	-.46	-.45	-.78	.36	.16	-.31	-.23	.59	.79	-.59	.86	.34
2			-.46	-.53	.41	.28	.57	.53	.59	.87	-.27	.38	.69	-.39	.59	.97	.42	-.04	-.43	.11	.62	.37	-.07	-.24	.22	.58	.75	-.62	-.58	-.16	-.65	-.72
3				-.31	-.09	-.02	-.49	-.52	-.34	-.42	.89	-.15	-.38	.72	-.39	-.49	-.54	.55	.19	-.40	-.49	-.36	-.81	.29	.03	-.17	-.29	.66	.82	-.59	.79	.39
4					.79	.39	.90	.88	.97	.73	-.07	-.12	.92	.10	.95	.63	.07	.38	-.95	.49	.87	-.28	-.13	.49	.31	.24	.86	-.84	-.60	-.52	-.19	-.89
5						.55	.68	.68	.78	.54	-.03	-.02	.67	.09	.73	.51	.02	.68	-.77	.22	.78	-.31	-.31	.41	-.01	.52	.56	-.58	-.30	-.59	-.10	-.82
6							.50	.58	.36	.30	.17	-.19	.53	.12	.56	.25	-.22	.37	-.49	.18	.69	-.32	-.34	.24	.39	-.08	.28	-.19	.05	-.56	-.17	-.49
7								.98	.91	.73	-.27	-.23	.94	-.03	.97	.60	.25	.24	-.83	.53	.93	-.27	.07	.39	.26	.13	.85	-.79	-.69	-.32	-.46	-.87
8									.87	.70	-.29	-.22	.92	-.06	.96	.58	.20	.21	-.83	.57	.96	-.26	.11	.39	.28	.07	.78	-.79	-.66	-.31	-.46	-.85
9										.69	-.14	-.16	.92	.13	.93	.65	.18	.39	-.87	.48	.83	-.29	-.09	.50	.29	.30	.87	-.79	-.64	-.47	-.29	-.92
10											-.15	.25	.82	-.36	.77	.91	.29	.09	-.69	.14	.76	.18	-.14	-.13	.16	.49	.89	-.77	-.59	-.29	-.47	-.76
11												-.25	-.09	.67	-.12	-.30	-.72	.49	-.09	-.38	-.26	-.44	-.88	.21	.35	-.25	.02	.39	.74	-.71	.79	.20
12													-.19	-.46	-.20	.46	.34	-.25	.17	.09	-.08	.95	.03	-.34	-.32	.47	-.10	-.16	-.20	.09	-.31	-.02
13														.01	.98	.72	.14	.25	-.86	.37	.90	-.26	-.13	.28	.45	.20	.93	-.77	-.60	-.45	-.38	-.88
14															.04	-.42	-.42	.57	-.15	.09	-.17	-.62	-.58	.75	.32	-.38	.01	.37	.38	-.63	.63	.02
15																.65	.09	.29	-.92	.47	.95	-.29	-.08	.39	.40	.15	.87	-.81	-.61	-.46	-.34	-.89
16																	.43	-.00	-.52	.16	.68	.39	-.05	-.19	.15	.65	.77	-.72	-.65	-.20	-.62	-.76
17																		-.29	.19	.20	.14	.48	.49	-.12	-.49	.45	.23	-.17	-.71	.43	-.80	-.15
18																			-.45	-.13	.26	-.58	-.68	.59	-.14	.28	.26	.05	.30	-.78	.45	-.41
19																				-.39	-.85	.37	.26	-.44	-.39	-.12	-.77	.78	.40	.61	-.00	.84
20																					.43	.12	.36	.59	.21	-.34	.23	-.55	-.57	-.06	-.34	-.42
A																						-.18	-.00	.25	.27	.24	.75	-.79	-.58	-.37	-.46	-.89
B																							.31	-.52	-.26	.30	-.16	-.12	-.29	.42	-.49	.12
C																								-.23	-.24	-.13	-.20	-.23	-.56	.86	-.57	.12
D																									.11	-.26	.19	-.12	-.01	-.56	.27	-.35
E																										-.43	.32	-.23	.01	-.35	.10	-.25
F																											.33	-.26	-.29	-.07	-.31	-.41
G																												-.70	-.59	-.43	-.33	-.81
H																													.74	.12	.43	.78
I																														-.25	.75	.58
J																															-.42	.46
K																																.37
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Northover Teachers n = 44.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.43	.97	-.21	.16	-.11	-.52	-.51	-.28	-.43	.86	-.14	-.24	.83	.28	-.49	-.79	.43	-.28	-.51	-.20	-.44	-.82	.35	.31	-.40	-.46	.43	.88	-.73	.91	.18
2			-.32	.41	.32	.26	.36	.44	.48	.87	-.13	.17	.58	-.24	.61	.93	.40	.06	-.26	.08	.47	.29	-.03	-.06	.38	.59	.74	-.47	-.47	-.22	-.64	-.66
3				-.08	.29	-.05	-.42	-.42	-.16	-.29	.88	-.13	.57	.83	-.19	-.37	-.75	.57	-.30	-.48	-.14	-.45	-.84	.44	.31	-.28	-.33	.33	.88	-.81	.84	.04
4					.64	.87	.86	.88	.97	.53	.11	-.44	.96	.14	.89	.51	.09	.45	-.66	.27	.88	-.53	.16	.66	.45	.38	.79	-.87	-.29	-.16	-.39	-.90
5						.44	.28	.30	.61	.28	.19	-.04	.53	.28	.39	.31	-.04	.82	-.50	-.13	.52	-.38	-.34	.63	.16	.67	.29	-.41	.19	-.53	-.06	-.68
6							.79	.81	.80	.27	.17	-.48	.84	.16	.85	.31	-.05	.27	-.78	.46	.94	-.52	.24	.65	.48	.01	.58	-.83	-.23	-.06	.27	-.79
7								.99	.88	.43	-.24	-.51	-.84	-.07	.83	.44	.43	.14	-.39	.51	.77	-.38	.56	.51	.21	.21	.81	-.79	-.62	.27	-.66	-.74
8									.90	.49	-.21	-.49	.88	-.06	.87	.50	.39	.14	-.45	.51	.80	-.36	.53	.50	.29	.22	.84	-.82	-.62	.23	-.67	-.79
9										.54	.04	-.49	.96	.13	.89	.52	.18	.39	-.56	.22	.82	-.52	.21	.62	.46	.42	.83	-.82	-.37	-.09	-.49	-.88
10											-.03	.18	.65	-.29	.66	.96	.25	.08	-.27	.07	.46	.23	-.03	-.09	.41	.59	.83	-.62	-.44	-.24	-.52	-.67
11												-.27	.15	.74	.13	-.14	-.87	.36	-.51	-.44	.09	-.50	-.78	.34	.69	-.35	-.06	.04	.73	-.79	.73	-.12
12													-.46	-.45	-.47	.25	.14	-.17	.22	.14	-.34	.87	-.13	-.46	-.43	.28	-.33	.14	-.03	-.09	.06	.23
13														.12	.97	.63	.09	.32	-.68	.20	.89	-.46	.12	.53	.62	.34	.88	-.85	-.37	-.19	-.46	-.92
14															.06	-.31	-.47	.55	-.44	-.33	.09	-.66	-.63	.69	.40	-.33	-.08	.23	.54	-.65	.59	-.16
15																.66	.12	.18	-.69	.25	.91	-.89	.16	.43	.66	.24	.89	-.84	-.44	-.13	-.49	-.87
16																	.39	.06	-.34	.15	.53	.32	.02	-.06	.34	.61	.80	-.61	-.55	-.21	-.60	-.69
17																		-.16	.31	.38	.09	.38	.61	-.11	-.50	.43	.35	-.10	-.81	.54	-.84	-.15
18																			-.34	-.29	.27	-.52	-.49	.69	.04	.43	.17	-.09	.46	-.63	.21	-.52
19																				-.17	-.84	.41	.28	-.61	-.65	.02	-.37	.60	-.01	.50	-.13	.71
20																					.34	.23	.69	.22	-.23	-.20	.18	-.55	-.55	.52	-.42	-.28
A																						-.38	.16	.57	.50	.21	.68	-.84	-.37	-.14	-.38	-.87
B																							.17	-.68	-.43	.15	-.19	.15	-.34	.25	-.24	.31
C																								-.13	-.39	-.05	.22	-.36	-.73	.92	-.68	-.00
D																									-.21	-.01	.25	-.37	.16	-.35	.10	-.61
E																										-.13	.46	-.39	.11	-.51	.13	-.46
F																											.43	-.28	-.25	-.17	-.49	-.46
G																												-.73	-.55	-.06	-.66	-.81
H																													.45	-.04	.48	.79
I																														-.60	.85	.29
J																															-.53	.32
K																																.42
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Northover Leavers n = 90.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.35	.97	-.36	.04	-.32	-.50	-.59	-.31	-.43	.86	-.20	-.31	.80	-.35	-.44	-.77	.48	.05	-.55	-.48	-.39	-.83	.36	.39	-.26	-.34	.52	.88	-.71	.92	.26
2			-.25	.48	.27	.29	.43	.42	.50	.91	-.09	.29	.59	-.19	.55	.96	.35	-.04	-.28	-.01	.40	.31	-.15	-.24	.33	.57	.81	-.51	-.47	-.27	-.61	-.69
3				-.27	.16	-.24	-.42	-.52	-.23	-.32	.84	-.15	-.22	.83	-.26	-.32	-.68	.58	.01	-.53	-.39	-.39	-.88	.45	.37	-.15	-.22	.47	.84	-.80	.83	.13
4					.61	.79	.90	.88	.99	.61	.02	-.30	.95	.04	.89	.55	.10	.23	-.82	.48	.89	-.43	.08	.42	.43	.28	.79	-.88	-.43	-.19	-.49	-.39
5						.47	.32	.32	.64	.28	.14	.03	.50	.24	.42	.33	-.01	.77	-.53	-.02	.47	-.39	-.38	.59	.08	.68	.32	-.41	.09	-.51	-.08	-.74
6							.87	.86	.77	.35	.03	-.33	.83	-.01	.91	.33	-.04	.11	-.85	.55	.96	-.44	.09	.32	.39	.00	.56	-.76	-.31	-.11	-.40	-.71
7								.99	.88	.54	-.13	-.39	.91	-.07	.95	.48	.22	-.04	-.76	.62	.94	-.36	.29	.26	.38	.02	.78	-.83	-.59	.05	-.62	-.75
8									.86	.53	-.23	-.38	.88	-.16	.92	.47	.30	-.07	-.72	.62	.94	-.33	.38	.21	.29	.07	.75	-.82	-.65	.15	-.69	-.74
9										.58	.06	-.36	.95	.10	.88	.54	.09	.28	-.79	.39	.86	-.49	.03	.42	.47	.32	.80	-.83	-.39	-.22	-.47	-.91
10											-.12	.30	.66	-.31	.60	.97	.35	-.06	-.36	.11	.49	.29	-.04	-.23	.26	.55	.87	-.67	-.52	-.22	-.63	-.71
11												-.33	.12	.73	.05	-.16	-.89	.38	-.34	-.37	-.10	-.52	-.81	.81	.74	-.26	.03	.09	.73	-.79	.76	-.05
12													-.31	-.48	-.31	.41	.29	-.19	.27	-.03	-.25	.87	-.04	-.38	-.42	.46	-.17	-.02	-.13	-.06	-.15	.12
13														.08	.97	.63	.05	.10	-.85	.39	.90	-.39	-.14	.28	.60	.21	.86	-.85	-.45	-.27	-.48	-.87
14															.03	-.31	-.49	.57	-.23	-.29	-.12	-.66	-.69	.72	.53	-.22	-.01	.29	.53	-.68	.61	-.11
15																.58	.08	.01	-.87	.47	.95	-.36	.04	.24	.55	.09	.81	-.83	-.49	-.19	-.51	-.81
16																	.39	-.07	-.35	.08	.47	.36	-.08	-.23	.24	.63	.82	-.63	-.54	-.25	-.64	-.70
17																		-.21	.27	.18	.13	.45	.57	-.19	-.58	.45	.26	-.08	-.79	.54	-.81	-.16
18																			-.13	-.36	.01	-.55	-.60	.69	.01	.45	.06	.12	.54	-.59	.31	-.42
19																				-.47	-.86	.48	.16	-.43	-.65	.01	-.54	.79	.19	.38	.12	.69
20																					.63	.03	.63	.22	.01	-.32	.14	-.66	-.52	.38	-.46	-.26
A																						-.33	.21	.27	.36	.10	.66	-.88	-.52	-.03	-.55	-.77
B																							.26	-.67	-.45	.22	-.14	.08	-.34	.29	-.33	.30
C																								-.29	-.48	-.19	-.06	-.25	-.67	.93	-.63	.16
D																									.19	-.02	.03	-.11	.25	-.43	.24	-.39
E																										-.27	.48	-.36	.13	-.58	.22	-.38
F																											.36	-.19	-.18	-.23	-.38	-.53
G																												-.68	-.50	-.25	-.59	-.82
H																													.52	.04	.55	.74
I																														-.53	.88	.32
J																															-.48	.38
K																																.49
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Northover Stay (intended) n = 39.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.47	.94	-.18	.27	-.06	-.46	-.49	-.34	-.52	.81	-.16	-.21	.83	-.22	-.47	-.74	.52	-.54	-.31	.07	-.47	-.82	.37	.34	-.46	-.51	.35	.81	-.74	.90	.12
2			-.22	.35	.25	.25	.26	.42	.43	.81	-.13	.21	.58	-.23	.59	.84	.47	.13	-.09	.26	.45	.39	.06	.03	.32	.54	.64	-.43	-.48	-.12	-.59	-.69
3				.09	.52	.16	-.26	-.27	-.06	-.28	.89	-.18	.08	.86	.06	-.23	-.67	.74	-.69	-.22	.33	-.51	-.85	.56	.47	-.27	-.26	.09	.75	-.85	.78	-.21
4					.63	.84	.83	.85	.96	.46	.23	-.44	.94	.16	.91	.46	.15	.45	-.53	.24	.85	-.49	.13	.69	.46	.36	.76	-.88	-.29	-.02	-.28	-.84
5						.46	.24	.24	.57	.12	.34	-.16	.54	.43	.44	.15	-.02	.90	-.55	-.03	.66	-.45	-.41	.72	.23	.53	.20	-.38	.30	-.48	.05	-.69
6							.79	.80	.77	.22	.26	-.47	.79	.22	.79	.26	.04	.37	-.56	.47	.88	-.48	.23	.72	.40	-.03	.56	-.81	-.39	.06	-.17	-.77
7								.95	.87	.36	-.11	-.52	.76	-.05	.79	.38	.45	.05	-.14	.39	.62	-.37	.57	.53	.15	.16	.79	-.76	-.56	.40	-.56	-.61
8									.89	.49	-.09	-.39	.85	-.06	.86	.53	.44	.06	-.25	.46	.69	-.26	.51	.51	.27	.19	.85	-.83	-.64	.35	-.53	-.72
9										.50	.06	-.44	.93	.07	.90	.50	.32	.35	-.36	.21	.76	-.43	.26	.62	.38	.45	.83	-.83	-.42	.10	-.46	-.81
10											-.03	.25	.62	-.37	.62	-.37	.63	.43	.28	.04	.35	.34	.11	-.11	.37	.57	.81	-.59	-.53	-.12	-.46	-.60
11												-.28	.26	.72	.28	-.07	-.78	.55	-.68	-.22	.36	-.52	-.74	.45	.74	-.34	.01	-.13	.60	-.78	.73	-.26
12													-.38	-.41	-.43	.32	.07	-.14	.10	.31	-.29	.88	-.10	-.43	-.39	.21	-.30	.11	-.09	-.16	.08	.14
13														.18	.98	.65	.18	.39	-.55	.22	.86	-.36	.06	.61	.63	.37	.86	-.84	-.39	-.10	-.33	-.91
14															.15	-.22	-.37	.61	-.68	-.19	.40	-.63	-.69	.70	.45	-.32	-.15	.15	.45	-.63	.60	-.23
15																.64	.18	.31	-.49	.24	.84	-.36	.11	.57	.66	.27	.89	-.83	-.41	-.07	-.36	-.87
16																	.43	.07	-.24	.30	.48	.39	.07	.06	.32	.52	.76	-.58	-.65	-.15	-.45	-.67
17																		-.21	.38	.29	.09	.33	.58	-.01	-.47	.47	.39	-.09	-.76	.52	-.86	-.21
18																			-.62	-.16	.59	-.47	-.63	.67	.27	.34	.08	-.18	.49	-.70	.33	-.59
19																				-.20	-.78	.38	.56	-.72	-.62	.10	-.13	.45	-.16	.59	-.49	.61
20																					.38	.38	.44	.31	-.17	-.22	.14	-.53	-.42	.31	-.25	-.35
A																						-.39	-.11	.79	.51	.18	.57	-.74	-.18	-.26	-.09	-.91
B																							.21	-.62	-.41	.14	-.13	.13	-.37	.16	-.27	.20
C																								-.22	-.44	.01	.32	-.30	-.65	.93	-.73	.07
D																									.31	-.04	.25	-.47	.09	-.29	.14	-.67
E																										-.10	.44	-.39	.09	-.49	.24	-.49
F																											.42	-.25	-.26	-.06	-.50	-.41
G																												-.73	-.62	.10	-.58	-.71
H																													.41	-.10	.30	.77
I																														-.57	.74	.26
J																															-.64	.27
K																																.27
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Northover Leave (intended) n = 55.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.56	.96	-.25	-.11	.06	-.43	-.42	-.26	-.45	.93	-.31	-.37	-.64	-.37	-.63	-.69	.53	.28	-.33	-.53	-.46	-.79	.24	.20	-.36	-.30	.58	.83	-.57	.79	.32
2			-.53	.44	.35	.37	.54	.55	.51	.85	-.36	.35	.68	-.37	.68	.95	.43	-.19	-.43	.32	.67	.40	.04	-.12	.26	.50	.71	-.61	-.62	-.16	-.73	-.64
3				-.30	-.08	-.04	-.51	-.53	-.30	-.49	.89	-.18	-.45	.66	-.44	-.58	-.56	.55	.40	-.39	-.62	-.36	-.79	.23	.07	-.19	-.36	.66	.81	-.56	.76	.37
4					.80	.41	.88	.82	.98	.65	-.11	-.24	.85	.26	.58	.52	.04	.38	-.93	.58	.80	-.39	-.10	.61	.41	.30	.81	-.83	-.64	-.52	-.10	-.88
5						.36	.59	.52	.76	.46	-.05	-.03	.57	.25	.59	.44	.02	.66	-.72	.36	.63	-.29	-.30	.59	.11	.60	.50	-.59	-.38	-.60	.03	-.80
6							.53	.65	.48	-.29	.13	-.37	.63	.12	.58	.21	-.19	.13	-.44	.47	.64	-.38	-.24	.33	.81	-.21	.39	-.32	-.06	-.52	-.26	-.53
7								.98	.91	.70	-.30	-.33	.96	.07	.96	.56	.29	.11	-.88	.72	.91	-.32	.14	.52	.42	.08	.87	-.80	-.76	-.29	-.44	-.84
8									.85	.70	-.28	-.33	.96	-.03	.94	.55	.24	.02	-.86	.70	.95	-.31	.13	.42	.51	-.00	.84	-.79	-.69	-.28	-.48	-.79
9										.67	-.11	-.28	.90	.29	.93	.55	.11	.35	-.89	.61	.81	-.39	-.10	.62	.47	.29	.85	-.79	-.66	-.53	-.19	-.89
10											-.19	.21	.81	-.32	.79	.91	.29	-.07	-.71	.31	.77	.21	-.08	-.04	.22	.43	.89	-.77	-.65	-.28	-.49	-.69
11												-.27	-.17	.57	-.19	-.41	-.67	.44	.15	-.37	-.39	-.42	-.89	.14	.33	-.26	-.07	.43	.70	-.66	.71	.25
12													-.26	-.48	-.23	.45	.27	-.35	.19	-.06	-.12	.93	.04	-.42	.42	.47	-.17	-.12	-.15	.16	-.28	.19
13														.03	.99	.68	.23	.09	-.85	.61	.92	-.26	-.02	.39	.55	.14	.94	-.78	-.69	-.41	-.47	-.85
14															.10	-.42	-.30	.67	-.05	.15	-.21	-.67	-.51	.79	.32	-.17	.04	.24	.24	-.62	.55	-.13
15																.67	.24	.12	-.85	.68	.90	-.25	-.00	.47	.54	.16	.93	-.80	-.73	-.43	-.45	-.87
16																	.49	-.17	-.51	.29	.69	.45	.06	-.13	.08	.62	.74	-.69	-.72	-.14	-.68	-.63
17																		-.34	.05	.23	.24	.39	.52	-.04	-.41	.35	.26	-.13	-.70	.43	-.77	-.12
18																			-.26	-.04	.01	-.60	-.57	.64	.01	.31	.11	.06	.26	-.69	.59	-.43
19																				-.60	-.87	.29	.04	-.47	-.38	-.17	-.78	.89	.59	.43	.12	.85
20																					.65	-.07	.26	.64	.40	-.21	.45	-.64	-.58	-.21	-.42	-.56
A																						-.12	.15	.29	.42	.20	.79	-.87	-.71	-.25	-.54	-.84
B																							.28	-.61	-.42	.30	-.17	-.07	-.19	.42	-.48	.27
C																								-.22	-.29	-.09	-.12	-.21	-.51	.84	-.54	.05
D																									.30	-.07	.29	-.24	-.19	-.58	.21	-.51
E																										-.39	.41	-.29	-.00	-.53	-.06	-.37
F																											.25	-.27	-.35	-.12	-.17	-.41
G																												-.72	-.67	-.41	-.39	-.78
H																													.76	.17	.39	.76
I																														-.17	.69	.59
J																															-.36	.48
K																																.28
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Southover Teachers n = 34.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.29	.88	-.08	.26	-.00	-.41	-.41	-.19	-.25	.81	-.07	-.05	.74	-.14	-.44	-.84	.56	-.12	-.55	-.27	-.41	-.76	.42	.36	-.30	-.34	.28	.84	-.70	.86	.10
2			.08	.44	.34	.31	.33	.39	.49	.84	.03	.22	.57	-.05	.52	.95	.29	.17	-.05	.12	.27	.24	-.25	.08	.41	.66	.71	-.39	-.31	-.43	-.54	-.64
3				.21	.56	.24	-.19	-.19	.06	.04	.80	-.04	.20	.65	.08	-.08	-.72	.74	-.25	-.49	.00	-.40	-.86	.56	.45	.04	-.05	.05	.80	-.89	.60	-.21
4					.54	.75	.85	.87	.95	.56	.26	-.41	.92	.18	.93	.54	-.07	.16	-.76	.07	.77	-.53	.00	.63	.62	.45	.81	-.86	-.19	-.25	-.28	-.89
5						.39	.22	.24	.52	.13	.16	-.10	.47	.39	.30	.27	-.10	.79	-.30	-.29	.37	-.41	-.49	.69	.21	.72	.21	-.16	.26	-.59	-.04	-.58
6							.67	.67	.71	.21	.26	-.49	.72	.28	.74	.29	-.17	.09	-.60	.19	.84	-.49	.07	.65	.64	.08	.51	-.64	-.00	-.20	-.32	-.77
7								.99	.88	.47	-.11	-.48	.77	.02	.86	.45	.31	-.12	-.51	.35	.67	-.38	.44	.50	.36	.28	.82	-.77	-.53	.18	-.57	-.79
8									.92	.51	-.10	-.47	.81	.04	.89	.51	.29	-.09	-.49	.33	.67	-.37	.41	.49	.40	.33	.85	-.77	-.54	.14	-.58	-.84
9										.54	.11	-.52	.95	.23	.93	.57	.10	.18	-.61	.03	.70	-.55	.08	.61	.59	.52	.85	-.73	-.33	-.15	-.43	-.93
10											.15	.19	.61	-.14	.67	.92	.17	.01	-.28	.11	.28	.16	-.17	-.00	.45	.53	.86	-.60	-.38	-.34	-.34	-.61
11												-.23	.34	.57	.27	-.07	-.87	.30	-.47	-.48	.06	-.49	-.71	.34	.75	-.24	.09	-.18	.67	-.68	.67	-.15
12													-.51	-.30	-.45	.21	.16	-.06	.45	.32	-.43	.86	-.16	-.39	-.41	.13	-.28	.19	-.06	-.19	.05	.31
13														.31	.96	.61	-.06	.17	-.69	-.12	.69	-.58	-.11	.56	.79	.46	.86	-.72	-.23	-.30	-.29	-.89
14															.20	-.23	-.44	.54	-.09	-.42	-.09	-.55	-.51	.73	.50	-.12	-.01	.19	.37	-.58	.43	-.30
15																.62	-.02	.00	-.71	.04	.73	-.49	.05	.49	.74	.34	.91	-.83	-.34	-.18	-.32	-.88
16																	.34	.03	-.19	.17	.39	.23	-.09	-.02	.37	.69	.81	-.55	-.46	-.27	-.57	-.66
17																		-.23	.42	.43	-.01	.45	.56	-.23	-.52	.38	.24	.06	-.82	.53	-.82	-.06
18																			.03	-.54	-.06	-.36	-.69	.54	.09	.49	-.02	.27	.57	-.75	.26	-.32
19																				.23	-.79	.65	.11	-.34	-.65	-.134	-.47	.76	-.04	.16	-.16	.46
20																					.09	.56	.68	-.03	-.27	-.17	.11	-.36	-.45	.44	-.58	-.11
A																						-.45	.17	.36	.46	.29	.55	-.76	-.21	.01	-.36	-.64
B																							.19	-.61	-.53	-.01	-.22	.22	-.29	.18	-.28	.39
C																								-.21	-.39	-.24	.07	-.22	-.67	.90	-.59	.04
D																									.42	.15	.27	-.27	.22	-.45	.03	-.67
E																										.02	.56	-.53	.14	-.49	.14	-.59
F																											.49	-.23	-.26	-.31	-.42	-.53
G																												-.74	-.48	-.14	-.50	-.82
H																													.31	-.00	.31	.66
I																														-.58	.72	.22
J																															-.42	.36
K																																.43
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Southover Leavers n = 152.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		-.29	.83	-.08	-.28	.07	.36	-.33	-.20	-.28	.77	-.04	-.06	.74	-.07	-.46	-.81	.57	.01	-.50	-.02	-.41	-.73	.41	.33	-.38	-.37	.23	.84	-.69	.81	.06
2			.17	.38	.31	.29	.31	.37	.49	.78	.06	.12	.53	.02	.49	.91	.28	.11	-.07	.19	.15	.22	-.25	.15	.47	.61	.67	-.31	-.31	-.39	-.57	-.59
3				.24	.59	.37	-.09	-.09	.11	.11	.79	-.02	.28	.68	.24	.03	-.65	.71	-.15	-.39	.30	-.37	-.87	.58	.50	-.00	.02	-.04	.73	-.93	.48	-.31
4					.55	.72	.89	.89	.93	.54	.28	-.45	.93	.16	.93	.52	-.11	.08	-.73	.08	.69	-.54	.06	.64	.59	.45	.81	-.86	-.17	-.17	-.28	-.87
5						.51	.28	.30	.53	.12	.18	-.16	.52	.41	.40	.27	-.15	.77	-.27	-.10	.59	-.41	-.44	.74	.23	.61	.21	-.23	.32	-.59	-.09	-.64
6							.63	.62	.68	.18	.34	-.51	.74	.35	.75	.31	-.24	.11	-.36	.16	.85	-.49	-.00	.69	.63	.05	.48	-.55	.07	-.23	-.30	-.78
7								.98	.90	.49	-.01	-.54	.81	.03	.84	.46	.22	-.15	-.50	.27	.52	-.43	.41	.53	.39	.33	.84	-.75	-.45	.18	-.52	-.79
8									.94	.52	-.00	-.49	.84	.10	.86	.49	.19	-.13	-.47	.30	.46	-.40	.39	.57	.44	.35	.83	-.74	-.46	.14	-.52	-.84
9										.54	.12	-.55	.95	.25	.90	.57	.09	.10	-.51	.07	.56	-.54	.13	.65	.57	.53	.84	-.68	-.33	-.09	-.47	-.91
10											.17	.15	.60	-.11	.66	.90	.16	-.06	-.42	.09	.13	.14	-.16	.05	.46	.56	.86	-.60	-.42	-.29	-.31	-.58
11												-.22	.36	.53	.37	-.03	-.85	.25	-.42	-.50	.25	-.49	-.68	.31	.75	-.26	.14	-.27	.63	-.66	.62	-.19
12													-.52	-.30	-.44	.16	.12	-.01	.28	.36	-.43	.86	-.18	-.37	-.40	.08	-.32	.19	-.03	-.21	.13	.33
13														.31	.97	.59	-.11	.08	-.64	-.08	.66	-.58	-.07	.60	.77	.46	.85	-.75	-.22	-.25	-.30	-.88
14															.26	-.21	-.44	.51	.16	-.36	.05	-.53	-.52	.73	.53	-.18	-.03	.19	.39	-.60	.35	-.33
15																.60	-.13	-.04	-.67	.02	.64	-.49	.00	.56	.76	.35	.87	-.82	-.27	-.21	-.26	-.87
16																	.30	-.01	-.31	.25	.29	.23	-.08	.06	.39	.71	.79	-.55	-.45	-.25	-.57	-.65
17																		-.24	.38	.44	-.24	.45	.54	-.20	-.51	.39	.21	.16	-.76	.51	-.79	.01
18																			.12	-.35	.15	-.29	-.68	.52	.00	.36	-.12	.28	.62	-.74	.23	-.26
19																				.24	-.63	.48	.05	-.12	-.47	-.32	-.54	.86	.02	.06	-.15	.38
20																					-.03	.59	.58	.08	-.27	-.02	.09	-.22	-.39	.34	-.60	-.23
A																						-.51	-.04	.46	.43	.26	.39	-.61	.11	-.17	-.19	-.60
B																							.16	-.55	-.49	.01	-.24	.25	-.29	.14	-.26	.36
C																								-.20	-.38	-.13	.09	-.19	-.66	.01	-.54	.03
D																									.42	.14	.29	-.26	.22	-.45	-.08	-.74
E																										.01	.56	-.51	.10	-.47	.09	-.59
F																											.52	-.32	-.31	-.21	-.44	-.49
G																												-.74	-.49	-.07	-.49	-.76
H																													.26	-.02	.20	.63
I																														-.59	.67	.16
J																															-.39	.33
K																																.44
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Southover Leave (intended) n = 81.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	A	B	C	D	E	F	G	H	I	J	K	L
1		.27	.89	-.12	.27	-.06	-.45	-.52	-.19	-.23	.84	-.11	-.06	.73	-.22	-.43	-.89	.54	-.10	-.53	-.49	-.39	-.77	.43	.36	-.25	-.31	.35	.82	-.72	.91	.17
2			-.04	.52	.33	.22	.35	.41	.49	.90	.02	.34	.57	-.15	.52	.86	.31	.21	-.18	.03	.35	.25	-.28	-.02	.34	.69	.74	-.49	-.29	-.44	-.51	-.65
3				.09	.56	.13	-.29	-.36	.00	-.08	.77	-.13	.09	.60	-.09	-.23	-.83	.75	-.20	-.53	-.29	-.45	-.83	.54	.35	.06	-.14	.19	.37	-.83	.69	-.05
4					.45	.72	.83	.83	.97	.59	.23	-.35	.90	.17	.93	.56	.03	.19	-.78	.06	.75	-.49	-.06	.58	.66	.44	.82	-.84	-.24	-.27	-.31	-.89
5						.29	.11	.11	.45	.09	.18	-.01	.38	.37	.17	.20	-.15	.81	-.24	-.45	.09	-.39	-.56	.62	.18	.75	.16	-.05	.27	-.62	.03	-.49
6							.64	.66	.69	.16	.20	-.46	.65	.19	.69	.18	-.09	.06	-.75	.23	.80	-.51	.09	.64	.59	.04	.43	-.68	-.01	-.15	-.31	-.69
7								.98	.86	.45	-.16	-.43	.73	.04	.88	.42	.40	-.09	-.59	.36	.76	-.36	.41	.47	.35	.20	.29	-.78	-.56	.18	-.58	-.79
8									.88	.49	-.22	-.40	.76	-.02	.89	.50	.46	-.10	-.56	.33	.80	-.33	.43	.39	.35	.28	.81	-.78	-.60	.19	-.65	-.83
9										.54	.14	-.46	.94	.21	.94	.54	.13	.25	-.68	-.02	.70	-.56	.01	.57	.62	.48	.84	-.75	-.31	-.19	-.39	-.04
10											.14	.24	.62	-.17	.64	.94	.19	.06	-.25	.11	.33	.20	-.19	-.08	.43	.51	.85	-.62	-.32	-.36	-.37	-.63
11												-.26	.34	.58	.19	-.07	-.87	.35	-.45	-.44	-.12	-.47	-.75	.37	.76	-.19	.09	-.09	.66	-.72	.72	-.09
12													-.48	-.36	-.45	.29	.21	-.14	.45	.28	-.31	.88	-.13	-.42	-.43	.22	-.23	.14	-.12	-.16	-.07	.29
13														.29	.94	.59	.02	.26	-.69	-.17	.63	-.57	-.17	.48	.80	.42	.87	-.68	-.22	-.32	-.29	-.89
14															.16	-.30	-.45	.56	-.26	-.51	-.18	-.62	-.50	.73	.47	-.11	.04	.23	.33	-.55	.55	-.25
15																.59	.13	.04	-.72	.09	.75	-.46	.09	.43	.71	.28	.91	-.82	-.37	-.13	-.39	-.89
16																	.39	.04	-.20	.09	.43	.27	-.11	-.15	.33	.68	.80	-.59	-.44	-.25	-.57	-.64
17																		-.38	.19	.37	.33	.40	.63	-.30	-.44	.32	.28	-.12	-.39	.59	-.84	-.17
18																			.02	-.69	-.27	-.46	-.69	.52	.16	.55	.10	.27	.54	-.74	.31	-.36
19																				.01	-.79	.59	.15	-.56	-.73	-.02	-.48	.71	.07	.23	.00	.53
20																					.33	.50	.70	-.12	-.25	-.32	.05	-.50	-.41	.51	-.51	-.00
A																						-.28	.32	.29	.42	.17	.58	-.81	-.47	.17	-.58	-.62
B																							.22	-.69	-.56	.01	-.22	.12	-.29	.22	-.29	.41
C																								-.25	-.42	-.31	.00	-.22	-.63	.91	-.61	.05
D																									.44	.09	.21	-.26	.23	-.44	.17	-.56
E																										.02	.56	-.52	.15	-.50	.18	-.57
F																											.46	-.17	-.13	-.36	-.40	-.55
G																												-.72	-.45	-.19	-.48	-.85
H																													.35	-.01	.46	.66
I																														-.57	.72	.27
J																															-.47	.33
K																																.45
L																																

Table of direction cosines or correlations between the Elements and the Constructs - Southover Uncertain (intended) n = 70.